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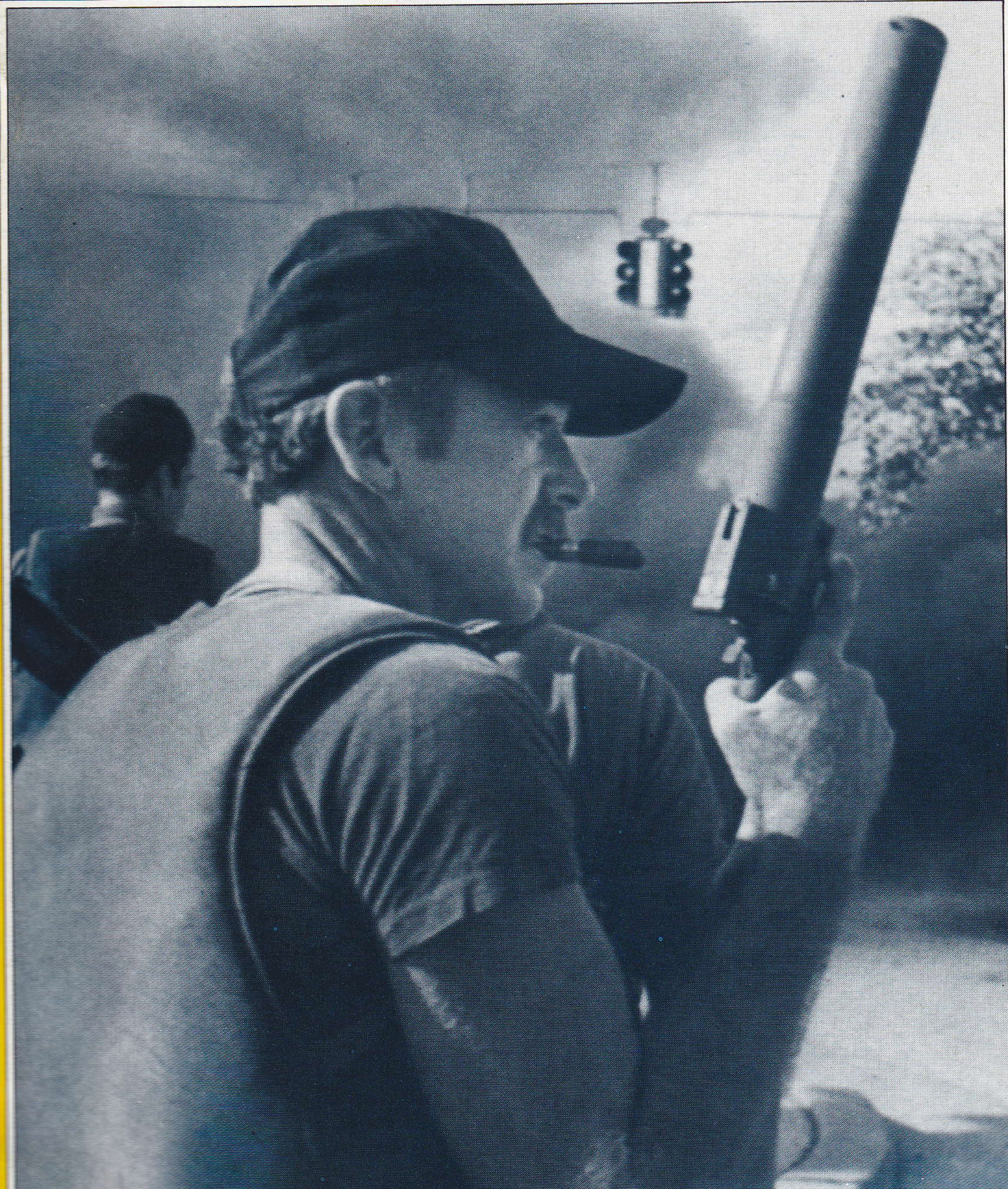

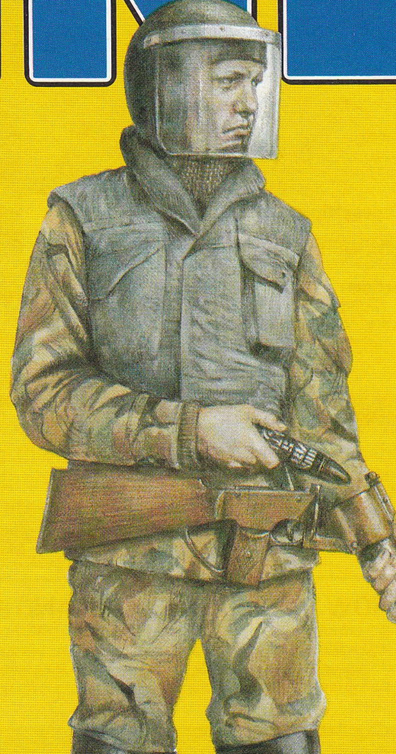

Armed Forces of the World: Peru

Riot Control Grenades

Riot Control Vehicles

Anatomy of a Riot

A fully illustrated guide to Riot Control Weapons

WAR MACHINE

19 PASS

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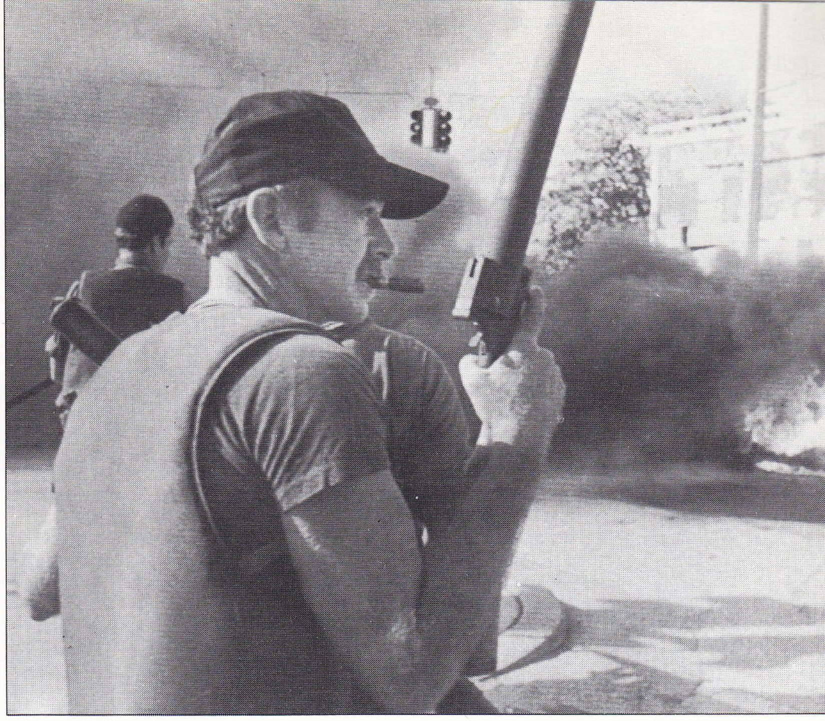
Riot Control Weapons

After the introduction of police forces the management of civil disorder ceased to be the responsibility of the military, but in recent years many armies have found themselves back in the front line against their own countrymen. Armies and paramilitary forces need special weapons for this unenviable task, since only the most extreme circumstances justify the use of lethal force.



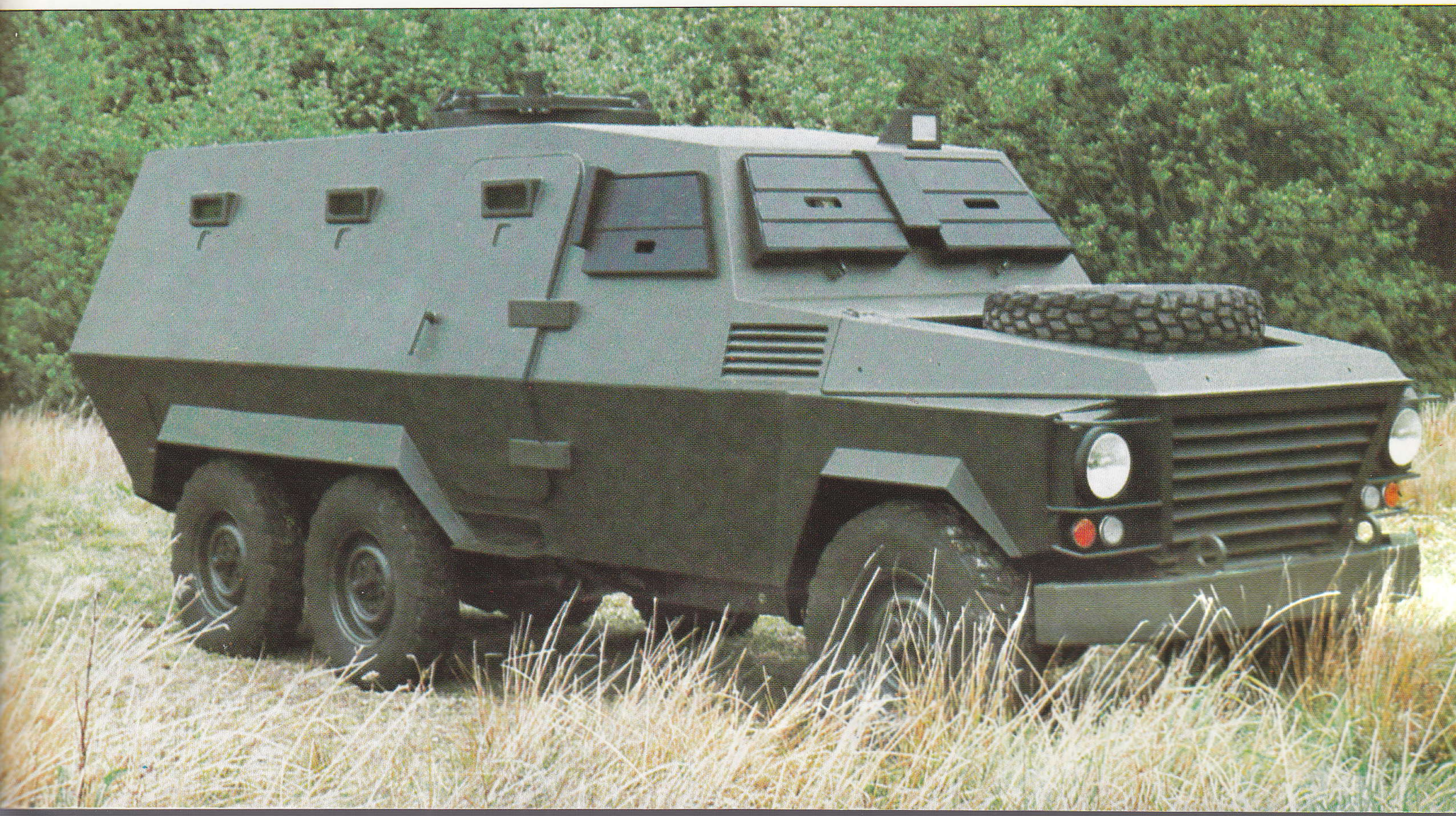
A US Police Officer armed with Smith and Wesson Shoulder Gas Gun ventures into the Overtown district of Miami during the 1982 riots. This rugged weapon fires a wide variety of 37-mm projectiles.

We live in difficult times. Even the most orderly and established societies now find themselves subject to all manner of disorderly and riotous behaviour or assembly which, if left unchecked, could topple the very establishment of written and unwritten laws by which modern societies exist. Many of these disorders are instigated by particular factions of society for their own ends, while others are the result of extreme or imagined injustices, or of deprivation. Many other causes can be adduced, but the result is outbursts that the established forces of law and authority have to contain as best they can.

To maintain order most modern police and internal security forces now have access to a wide range of equipment. Much of it is very specialized and designed to produce a specific end, i.e. the rapid re-establishment of an ordered and lawful situation with a minimum of force and casualties. Many modern anti-riot munitions are therefore non-lethal in their effects: they are meant only to disable temporarily or to persuade wrongdoers to act otherwise. Lethal weapons are maintained in the anti-riot weapons arsenal, but usually only for use as a last resort.

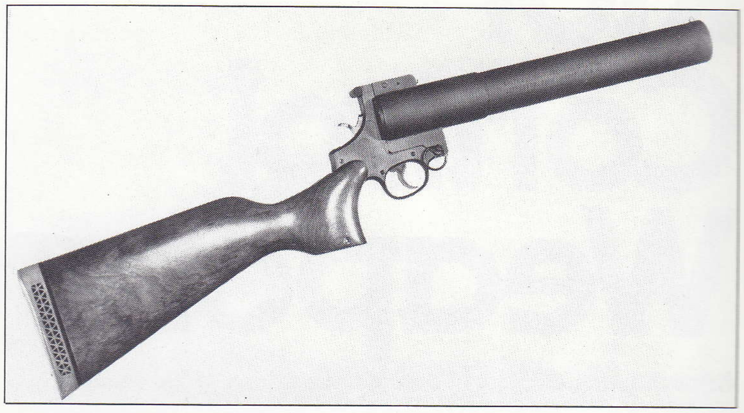
The arsenal is now quite extensive, ranging from disabling agents to baton rounds. Contained in the arsenal are some odd 'weapons' such as water cannon and impact weapons. There are even specialized vehicles that are produced with little more than internal security and riot- or crowd-control in mind. Several of them are included in this study, but the contents cannot cover the entire internal security- and riot-control scene. This is now a very large area that comprises not only the police and associated paramilitary forces, but also the military who are often drafted in to help out when a populace gets troublesome.

Hotspur Armoured Products offer a useful internal security vehicle based on the chassis of a Land Rover. Vehicles designed for this role must provide protection against weapons from petrol bombs and crowbars to grenades and mines.



USA

Smith and Wesson No. 210 Shoulder Gas Gun



The 37-mm (1.45-in) Smith and Wesson Shoulder Gas Gun is based on the 'N frame' revolver, but is a single-shot weapon which breaks open like a shotgun. Possible loadings include the No. 14 'Goliath' barricade-piercing baton/CS gas round.

In addition to its well known hand gun activities Smith and Wesson has also made considerable inroads into the international riot-control munitions market. It has produced a wide range of munitions filled with everything from irritant agents to smoke, and has also built the weapons to launch them. One of the most widely used of these launchers is the **Smith and Wesson No. 210 Shoulder Gas Gun**.

The No. 210 has a calibre of 37 mm (1.456 in), a riot-control munition calibre established in the USA (mainly by the efforts of Smith and Wesson) and now universally accepted as the calibre for the role. The basis of the weapon is the frame of the Smith and Wesson 'N frame' revolver, but instead of using revolving chambers the No. 210 is a single-shot weapon. The barrel breaks down in shotgun fashion, using the frame as a pivot. The outline of the pistol butt can still be discerned and in its place there is now a wooden butt fitted with a much-needed rubber recoil pad. The firing mechanism can be either single- or double-action, and there is an external hammer. The barrel can be removed for carrying or storage, and the weapon is usually issued with a shoulder sling. Fixed sights are used for aiming.

The No. 210 can fire a wide range of munitions. Some of these are rather unusual, such as the No. 14 Goliath projectile which is a CS-carrying baton projectile that can be fired through thin barricades. There are two types of No. 17 baton round, both thin metal cased, the longer-ranged version being fired to about 137 m (150 yards). The No. 18 baton round is similar to the No. 17 but uses a rubber slug with no metal casing. The No. 21 is intended for closer-range situations and fires a dense cloud of CS to a range of about 11 m (35 ft). Some of these rounds can be produced in a 'Tru-Flite' form with tail fins that impart better directional stability; these rounds also use a slightly heavier propellant charge. The heavier charge means that 'Tru-Flite' rounds cannot be fired from the No. 210 shoulder gun's stable-mate, the **No. 209 Gas Pistol**. This has a much shorter barrel than the No. 210, and has a standard revolver butt and frame.

The No. 210 has been in production for some years and is still in demand. It cannot be said that it is an easy launcher to fire for some rounds produce considerable recoil, and like many weapons of its kind it is not particularly accurate other than at very close ranges. The British army has used the type in Northern Ireland but has now moved over to the L1A1, though many British police forces retain the No. 210.

Smith and Wesson has recently decided to leave the riot-control munitions market and has offered this side of its business for sale as a going concern.

Specification

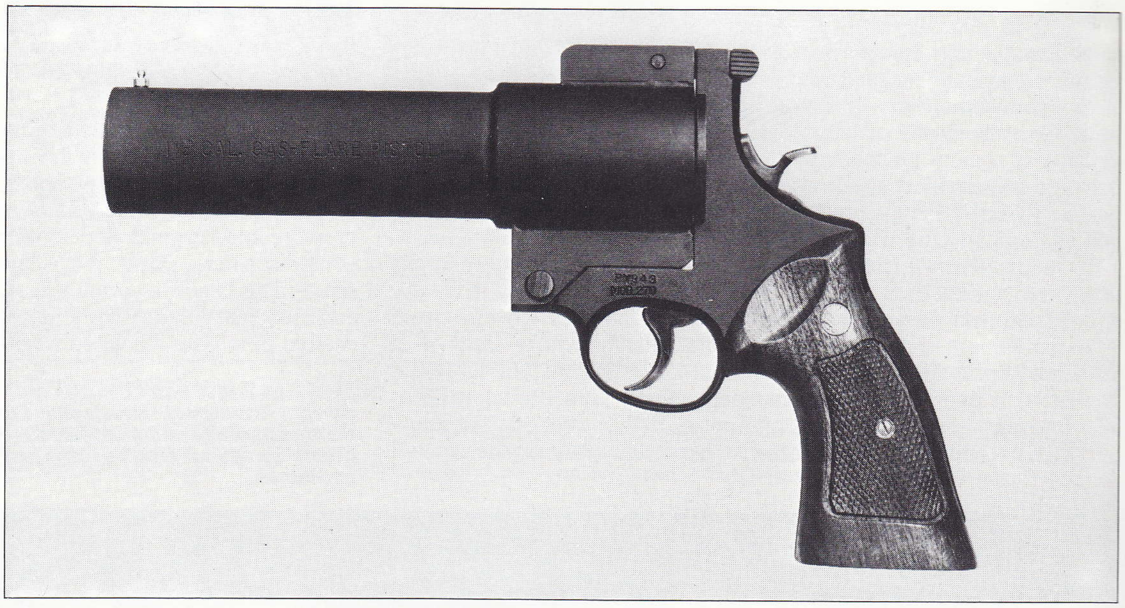
No. 210 Shoulder Gas Gun

Calibre: 37 mm (1.456 in)

Length: 736.6 mm (29 in)

Weight: about 2.7 kg (5.95 lb)

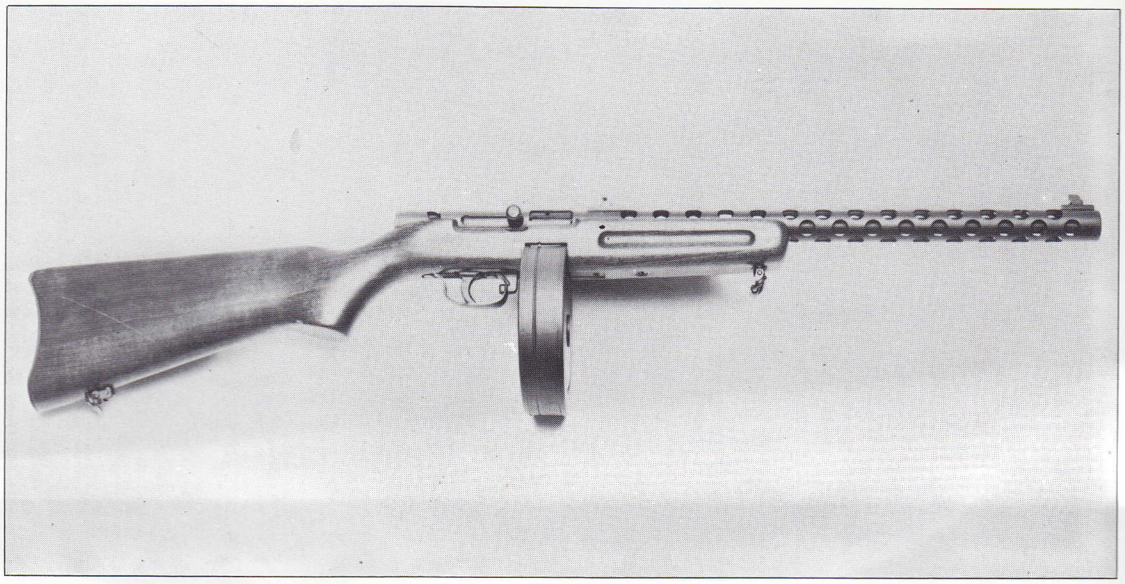
Maximum range: long-range baton round 137 m (150 yards)



No longer in production, the No. 210 was one of the first generation of riot control weapons, able to fire many different rounds but inaccurate except at point blank range.

USA

PPS-50 Bingham Carbine



Resembling the Soviet PPSh SMG of World War II, the Bingham carbine is a semi-automatic weapon firing .22 Long Rifle. The gun is intended for use in circumstances when full power rounds might endanger innocent lives.

The **PPS-50 Bingham Carbine** is the latest model in a series of what are essentially sub-machine guns chambered for the 5.56-mm (0.22-in) Long Rifle cartridge. The use of this relatively low-powered cartridge allows the weapon to be fired fully automatically without the heavy recoil that a more powerful round produces: this enables the firer to maintain a high degree of accuracy when it is required (e.g. in urban warfare or in guarding high-security prisons) to ensure hitting a point target.

The Bingham carbine is a conventional blowback weapon designed along the lines of the Soviet PPSh-41 sub-machine gun, hence the PPS in the

PPS-50 Bingham Carbine (continued)

designation. The Bingham design has a much longer barrel than the original, but retains the drum magazine that now holds 50 rounds. Also available are curved or straight box magazines each holding 30 rounds. A silenced version is under development, for use by Special Forces.

The Bingham carbine concept is partially based on an earlier and similar design known as the **American 180 M-2**. This also used the 5.56-mm Long Rifle cartridge and was basically a sub-machine gun with an unusual drum magazine over the receiver. It was not a great success and appears to have passed from the scene, but at the time attracted a great deal of attention because of its futuristic sighting system. This was a laser projector under the barrel that projected a circle of pink light calibrated to be directly in the line of fire: so all a user had to do was place the laser circle on the target and the barrel was aligned. Quite apart from the aiming purpose, the idea was that the target would also see the circle of pink light and give up without further ado if the circle came to rest on him. The laser projector was known as a Laser Lok and it would appear that the Bingham carbine would be an ideal weapon to carry a modern equivalent. It could then be used in internal security or prison riot situations to great advantage and considerable saving of life. However the Laser Lok, despite the great interest shown in it during the early 1970s when it first appeared, did not catch on, and these days it lives on only in Hollywood epics.

Specification

PPS-50
Calibre: 5.56 mm (0.22 in) Long Rifle
Lengths: overall 844 mm (33.23 in); barrel 408.9 mm (19.09 in)
Weight: empty 2.94 kg (6.48 lb)
Muzzle velocity: about 330 m (1,083 ft) per second
Magazine capacity: 50-round drum or 30-round box (curved or straight)

USA

Federal Riot Gun

The **Federal Riot Gun** is now one of the most widely-used riot guns ever produced, and is in service with armies, paramilitary and security forces all around the world. It was originally developed by Federal Laboratories Inc. of Saltsburg, Pennsylvania, to fire the extensive range of anti-riot munitions produced by Federal. At first most of these products were used by American penal institutions, but over the years their use has spread to many other organizations.

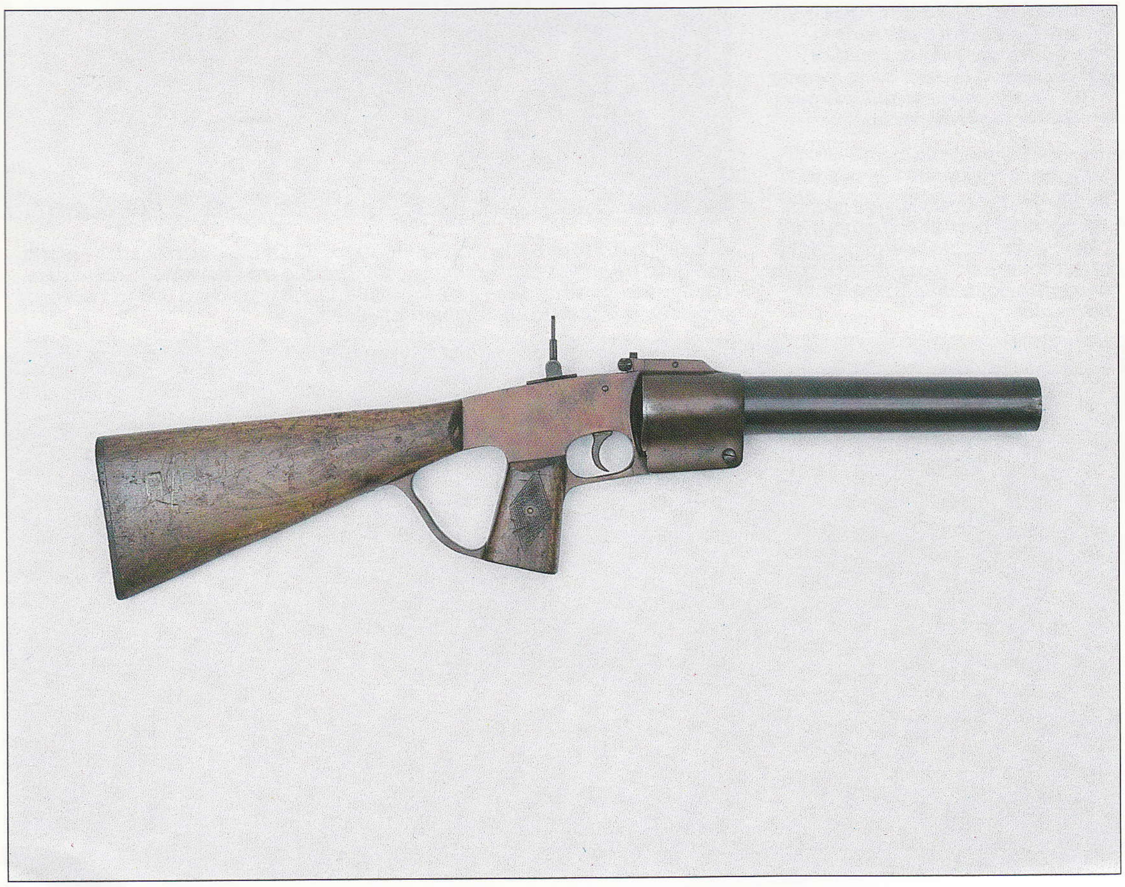
The Federal gun is a simple single-shot weapon with few frills. It is extremely robust and is manufactured using various non-rusting alloys. The latest version is the **Model 203A** which has an in-line barrel and butt arrangement and a very strong barrel and frame locking mechanism just forward of the large pistol grip. The firing mechanism is double-action only, and there is no external hammer to snag in clothing or other equipment. There is a foregrip with a connection for a sling, attached at the other end to the high-quality wooden butt. The sights are fixed at 45.7 m (50 yards). Most other models of the Federal riot gun are basically similar to the Model 203A.

One of the reasons for the Federal gun's widespread use is that it often comes as part of a package deal associated with Federal anti-riot munitions. These come in the standard 37-mm (1.456-in) calibre and can be fired by other types of riot gun. As usual there are many types of munition, but two deserve special mention. One is the Federal 'Spedeheat' CS round that can be fired to a range of about 100 m (109 yards): the round has a thin aluminium bullet-shaped casing and can emit CS fumes for up to 30 seconds, and can also double as a baton round. Another CS round is the Federal SKAT round that fires five small CS grenades at the same time: these are designed to land in front of a crowd and bounce in an erratic fashion. They usually bounce outwards in a fan-shaped arc to disperse their CS contents in an intense cloud. As they emit fumes for only about 15 seconds it is difficult for any rioter to pick up the grenades and throw them back.

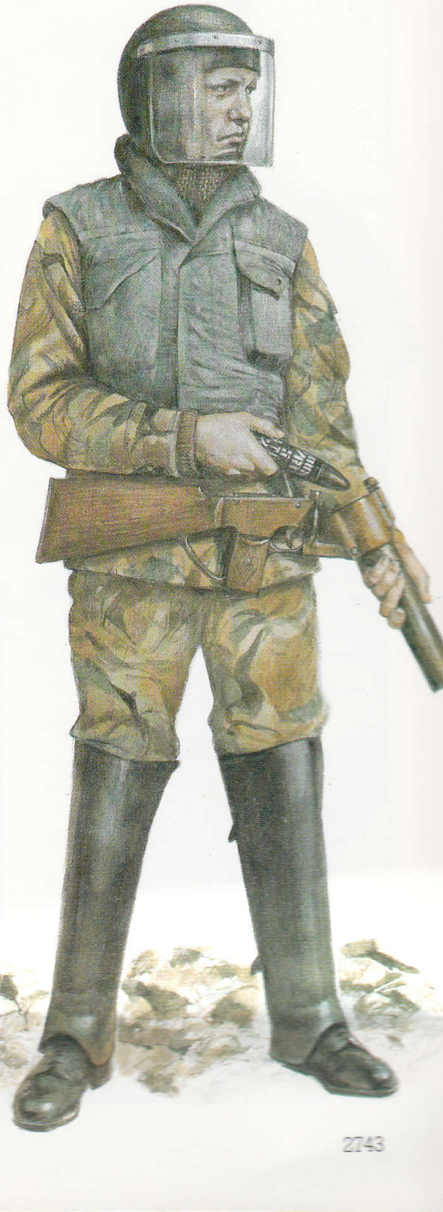
The Federal riot gun was one of the weapons obtained by the British army at the start of the Northern Ireland troubles. It was found to be a serviceable weapon but difficult to fire accurately, especially as it has quite a powerful recoil. It has now been replaced by the L1A1 grenade-launcher, but many British police forces use the Federal riot gun.

Specification

Federal Riot Gun
Calibre: 37 mm (1.456 in)
Length: 737 mm (29 in)
Weight: not recorded
Range: up to 100 m (109 yards)



The Federal Riot Gun is one of the most widely used weapons of its type, and serves with armies and police throughout the world. Manufactured in non-rusting alloys, it is a double-action, single-shot gun with no exposed hammer.



Right: The British Army used the Federal Riot Gun in Northern Ireland, finding it to be a reliable weapon, but its monstrous recoil and inherent lack of accuracy did not endear it to the troops. It has been superseded by the L1A1.

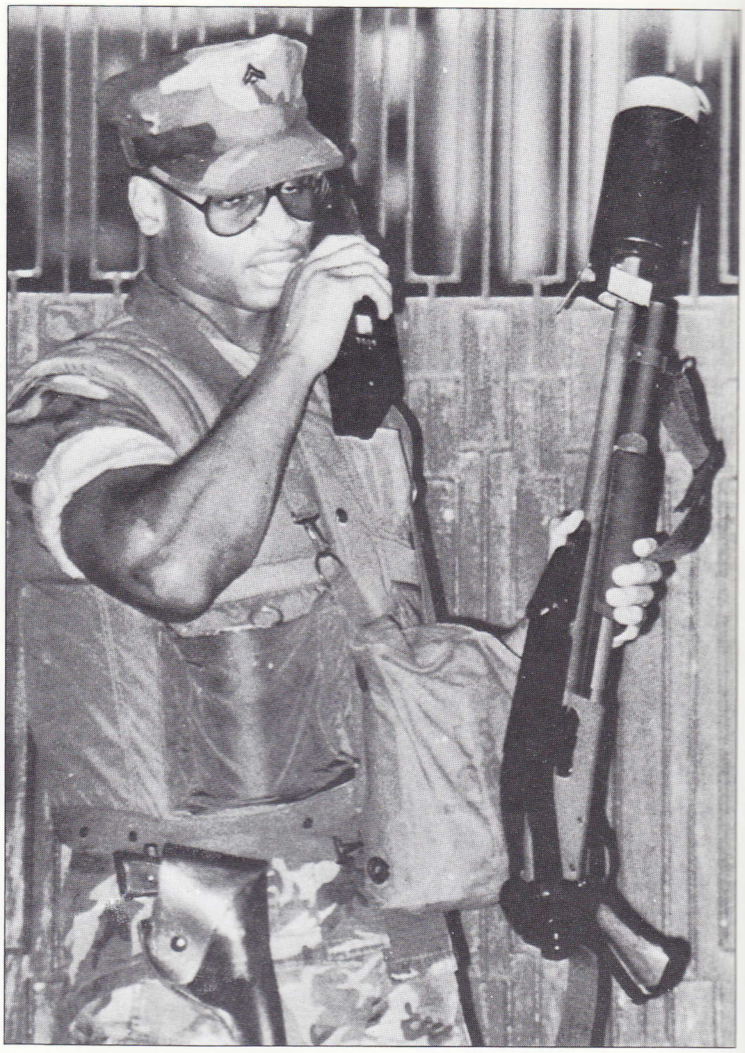
Riot Control Grenades

A depressingly large number of regimes have little compunction in using the full force of the military to stamp out civil disorder, but democratic governments seek other alternatives. The use of gas and plastic bullets remains subject to controversy, but it must be accepted that non-lethal weapons are preferable to appalling incidents like 'Bloody Sunday' and Kent State.

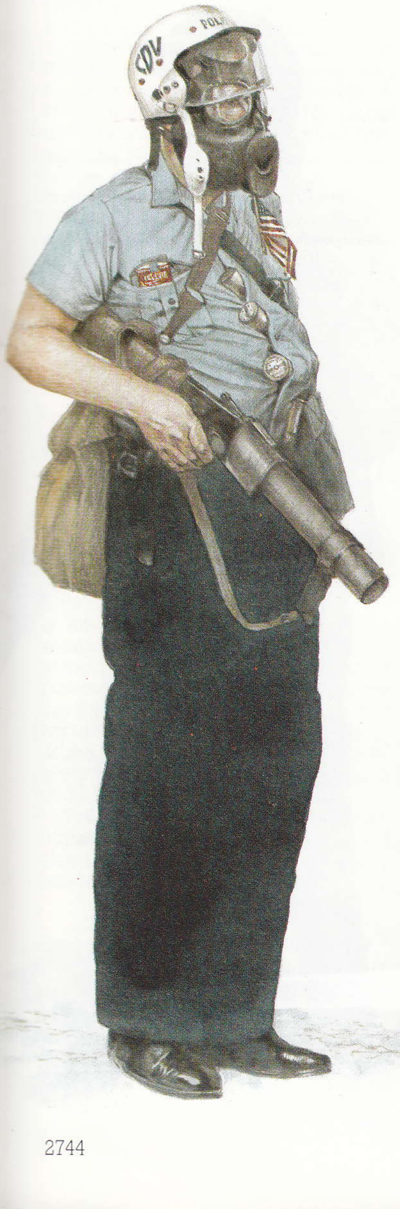
Riot-control grenades take two forms, chemical and kinetic. Chemical grenades are designed to emit fumes that irritate or disable to the extent that they prevent persons from carrying out a chosen course of action, i.e. they quell rioters. The main requirement of such agents is that they irritate or disable but do not permanently harm. For many years the chosen irritant agent was tear gas, a relatively harmless substance that does little more than bring tears to the eyes and impart a general feeling of choking and helplessness. Tear gas is now generally known as CN, but its proper chemical name is alpha-chloroacetophenone.

The main disadvantage to tear gas was found to be that in open areas its vapour cloud generally dispersed in such a manner that it easily lost its disabling properties. It was also relatively easy to get used to, and many fit young people could carry on their disorderly activities after exposure to CN with only a minimum of inconvenience. Inside a building it was often another matter, but in the open tear gas was soon seen to be relatively inefficient as an anti-riot weapon. During the early 1950s the search for a new agent was made and a new chemical, ortho-chloro-benzalmalono-nitrile, was put forward as an alternative and efficient disabling agent. It was not long before this new substance was given the handy appellation CS.

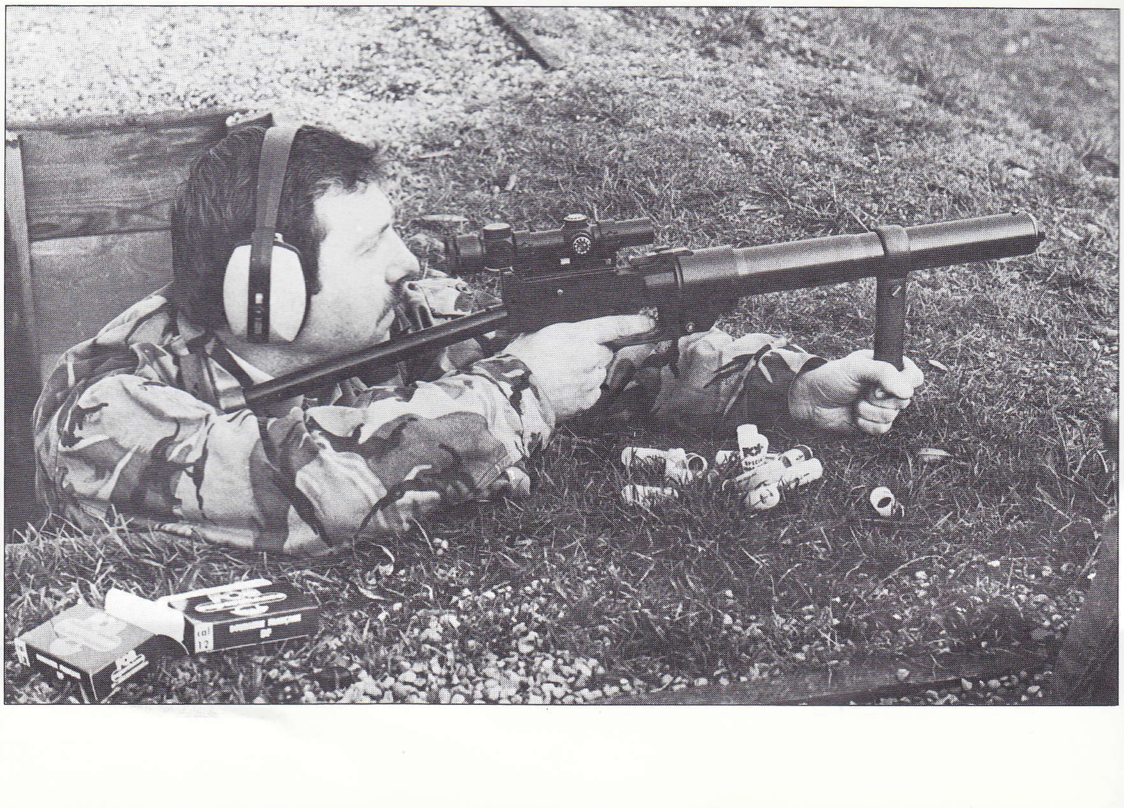
CS is normally a solid substance, but on contact with air it forms a white or light grey vapour cloud with a general odour of pepper (CS is thus sometimes known as pepper gas). The vapour can induce the usual tears, but with the addition of a general choking sensation and difficulty in breathing. The effect is distinctly unpleasant and high CS concentrations may cause nausea and vomiting. To add to its effects it can be persistent, especially if vapour droplets adhere to clothing. However, CS is not totally disabling and there are no long-term effects.



Above: The US Marines provide security for US Embassies around the world, and must be able to defend them against hostile crowds without immediate recourse to firearms. Seen here in Manila, this Marine has a tear gas grenade projector attached to his Remington 870 shotgun.



Left: The unacceptable face of law enforcement? A police officer in Washington, 1970, with CS gas rounds for his Riot Gun ready to hand. Early gas rounds could be picked up and thrown back, leading to the development of multiple gas pellets for rapid dispersal.



Below: Theoretically, baton rounds are not to be fired at individuals at close range but the new generation of riot control weapons are accurate enough to do so should it be necessary.

CS was first used during the late 1950s and was soon found to be a remarkably efficient method of breaking up mobs. At first it was usually delivered in hand grenades that were exactly the same as the tear gas and smoke grenades used previously. While these were eay to use and manufacture they suffered from the same drawbacks as the earlier grenades: it took time for the vapour cloud to build up, range was limited by the strength of the thrower (who thereby came well into missile range of the offending crowd) and the grenades could be picked up by an adventurous rioter and thrown back. A redesign of the basic CS grenade has therefore taken place.

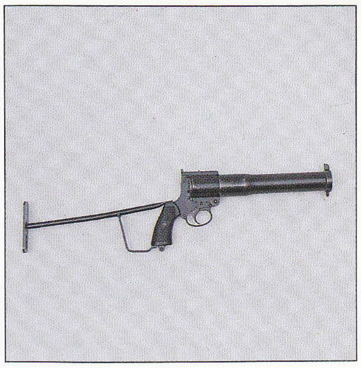
New grenade design

Modern CS grenades nearly all contain small multiple containers or pellets to emit the CS fumes. As the grenade body lands it scatters these small containers or pellets (the British L11A1 grenade releases 23) over a wide area, and the emission period is usually short to prevent any possibility of their being returned. The other design point is that CS grenades are now rarely thrown, but rather projected using a small propellant charge from a launcher to a range of 100 m (109 yards) or more, the launcher usually being some form of riot gun. When riot guns are used the usual diameter of the grenade is 37 mm (1.456 in), but this is now generally regarded as being too small and the British army has opted for a grenade diameter of 66 mm (2.6 in) and uses a specialized grenade-launcher rather than riot guns.

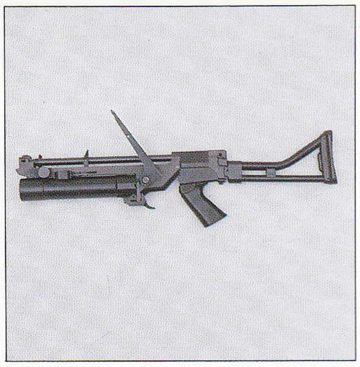
CS is not the only modern form of irritant agent, but it is the most widely used. Other irritant agents are mild hallucinogenic agents that impart a temporary feeling of panic or fear, but the use of such agents is disliked by many on humanitarian grounds, and they may thus be a double-edged weapon. Some of the 'mind' agents have a nasty habit of being just as effective on their users as on their intended targets, even when respirators are used. Most police and paramilitary respirators are limited in their effectiveness to protection against CS and CN only and some powerful modern agents could overcome their protective properties.

Humanitarian considerations also come to the fore when kinetic grenades are considered. These are usually the baton rounds or the infamous 'rubber bullets' that are used to disable by stunning. These kinetic projectiles were first mooted during the 1950s, when some authorities considered their use in riot situations in which guns could not be used but something more powerful than irritant agents was required. At first disabling missiles of several types were considered, ranging from lead shot in thick bags to heavy rubber rings. These were usually fired from ordinary riot guns and it was not long before the baton round in its present form appeared. At first wooden projectiles were used, but these were soon discarded as they were prone to splintering and causing nasty wounds. Then rubber was used for some time before it was discovered that under certain circumstances rubber was also likely to be too injurious. The current baton rounds are flat-ended PVC slugs that are not as heavy as rubber but are still likely to impart a powerful blow.

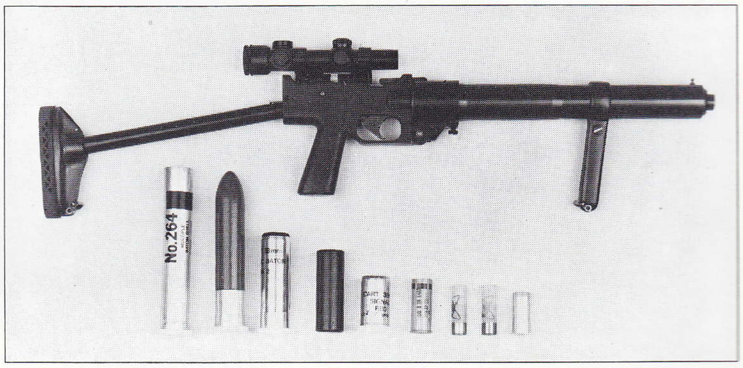
Baton rounds can cause serious injuries if used at very close ranges, and they have caused deaths. They are also very inaccurate and often have to be used more as area weapons than as point target weapons. But they can break up hostile crowds and when used with extreme care can even disable riot ringleaders or troublesome individuals. They can certainly keep crowds out of hand-thrown missile range. Despite this, the use of baton rounds has often resulted in a great public outcry against their employment. But in the absence of anything better the baton round is an established anti-riot munition.



The L67A1 produced by the Royal Ordnance Factory at Enfield is in service with the British Army. It fires the L18A1 CS gas round, which holds four gas pellets designed to burst 6 m above the ground so the crowd cannot pick up the gas canister and throw it back.



Fabrique National have produced this grenade-launcher to fit on to the FNC 5.56-mm light assault rifle; or, fitted with a stock, it can be used as a weapon in its own right.



Above: The Hilton multi-purpose gun is an anti-riot gun which can fire an impressive variety of projectiles from gas shells to single and multiple baton rounds. It is a far cry from the simple, almost crude, riot guns initially produced.

Below: British troops take cover from a hail of missiles while one soldier returns fire with a plastic bullet. The British Army adopted flat-nosed PVC slugs in place of rubber baton rounds, which produced too many fatalities. In experienced hands these can be surprisingly accurate.

School
H BLock

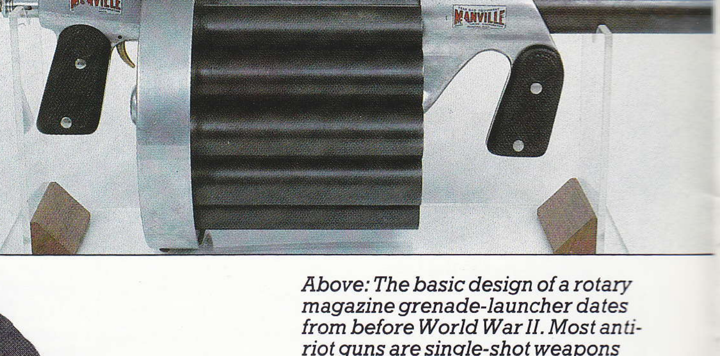
USA

MM-1 Multi-Round Projectile-Launcher

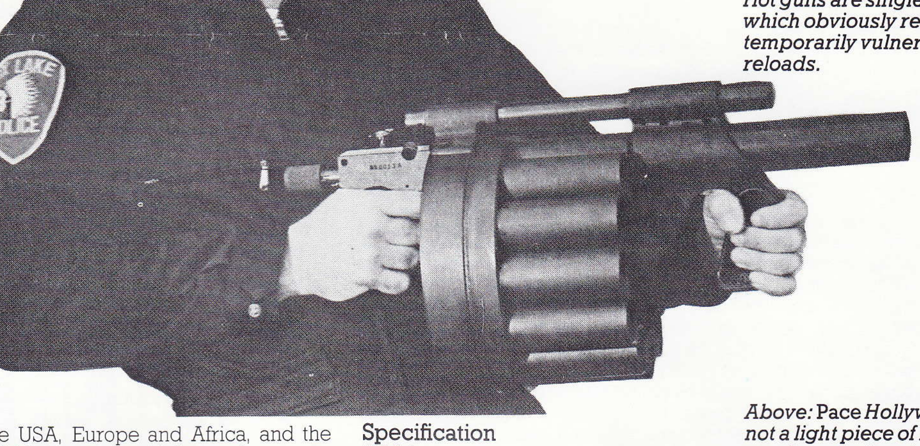
The **MM-1** is one of a new breed of anti-riot weapons that uses a rotary magazine to hold a number of anti-riot rounds ready to fire; in the case of MM-1 this magazine holds 12 rounds. The MM-1 has been designed for situations where a single anti-riot round would be of limited use: most current anti-riot weapons are single-shot only and have to be reloaded manually after every firing. In the face of a mob rushing directly at a firer that single round is often insufficient to deter everyone in the mob, and the firer can easily be overwhelmed.

With the MM-1 this is far less likely to happen. Using the MM-1 it is possible to fire 12 rounds in as few as six seconds, something that might make even the most determined mob have second thoughts. The rounds are held in 12 chambers on a rotating plate: as each round is fired a spring mechanism brings the next chamber into line with the barrel ready for another pull of the trigger. The MM-1 has no butt, being held by the firer by a foregrip and a pistol grip behind the large and bulky magazine. After each loading the chamber plate is wound up by turning it in a counter-clockwise direction to tension the spring mechanism.

The MM-1 can fire either 37-mm (1.456-in) or 40-mm (1.575-in) anti-riot munitions of all kinds, and adaptors can be used to fire conventional shotgun cartridges. Flares can also be fired. The maximum range is about 120 m (131 yards), but this capability is less important to most users than the shock effect of a number of rounds being fired in rapid succession. This is not the only advantage of the MM-1, for with it one man can lay down a wide CS or smoke screen from a range of over 100 m (109 yards). This fact has been rapidly appreciated by many police and special forces in the Middle East, the USA, Europe and Africa, and the MM-1 is now a widely-used weapon. The only problem that arises is that it is a bulky weapon and it takes some time to reload. The MM-1 is produced by Hawk Engineering Inc. of Northfield, Illinois.



Above: The basic design of a rotary magazine grenade-launcher dates from before World War II. Most anti-riot guns are single-shot weapons which obviously render the firer temporarily vulnerable while he reloads.



Above: Pace *Hollywood, the MM-1 is not a light piece of kit but offers a number of advantages over more conventional designs. One man can lay a large smokescreen or generate a big cloud of CS gas amongst a crowd from outside the range of hand-thrown missiles.*

Specification
MM-1
Calibre: 37 or 40 mm (1.456 or 1.575 in)
Length: 546 mm (21.5 in)
Weight: loaded 9 kg (19.84 lb)
Range: up to 120 m (131 yards)
Magazine capacity: 12 rounds.

USA

Power-Staf/KA-1 Impact Weapon

The **Power-Staf/KA-1** impact weapon comes into that unpleasant category of devices that have been labelled by the media as 'cattle prods'. It is true that in the past genuine cattle prods (imparting powerful but short electric shocks on contact) have been used as riot- or crowd-control devices, but the usual public reaction to the employment of them is one of such outrage that their use is actually counterproductive. The Power-Staf/KA-1 does not deliver an electric shock: instead it imparts a power kinetic blow.

The Power-Staf resembles a long baton with a very large handle. The handle contains a piston on a rod with an impact tip and a high-pressure air regulation system. When the Power-Staf is held horizontally and the operating trigger is pressed, the air-pressure system forces out the piston from the baton shaft at a speed of about 7.62 m (25 ft) per second. As it reaches its maximum extension the piston retracts immediately. The whole operation takes about 82 milliseconds. It takes little imagination to realize that any person in the path of the piston rod will receive a very nasty blow from its impact tip.

The air container in the device has enough pressure for about 30 piston actuations. After that the refillable air container has to be changed, this taking about 15 seconds. Ordinary compressors or air cylinders can be used for the refill process. It is possible to use the Power-Staf with a backpack carrying three air cylinders and enough air for 300 piston actuations. A special form of Power-Staf used with this backpack arrangement is known as the KA-1, and the entire backpack system is known as a **Riot Pac**.

When in use the Power-Staf has an effective strike range of between 1.68 and 1.98 m (5.5 and 6.5 ft). The blow is said to be powerful enough to ensure that anyone receiving it will involuntarily move away, so under riot conditions the Power-Staf and devices like it may well have their uses. Unfortunately they are also used within some of the stricter types of penal institution in many countries to ensure order and obedience of orders, something that does little to enhance the extreme dislike of such devices by many sensible people.

Specification
Power-Staf
Weight: 3.17 kg (6.99 lb)
Lengths: 787 mm (31 in); rod extension 610 mm (24 in)
Effective strike range: 1.68 to 1.98 m (5.5 to 6.5 ft)
Rod velocity: 7.62 m (25 ft) per second

ITALY

MOD-T-22 CS Rocket-Launcher

The **MOD-T-22 CS** is a novel approach to the dispensing of anti-riot agents (in this case CS) for it uses a rocket grenade fired from a barrel. The rocket grenade resembles a mortar bomb, complete with tail fins, while the projector at first sight appears to be a simple tube. These first impressions are deceptive, especially with regard to the projector, for the design is rather more complex than it appears.

The projector looks like a simple barrel but it is in fact two concentric barrels. The inner barrel is used to fire the rocket grenade while the outer barrel is used to direct the rocket exhaust gases forward around the muzzle. This enables the launcher to be fired from within an enclosed area, making it possible (for example) to fire grenades through a window from within a room. The launcher barrel has a hinged breech to allow loading from behind or from within an armoured vehicle, and the barrel can be elevated within limits in a simple steel frame.

The rocket grenades are entirely plastic and are designed to break up on impact to release their CS contents. The nose of the grenade is made from a flexible material that is designed to prevent injury if it strikes a person during its flight, although it seems likely that some wounding could result as the grenade weighs 0.62 kg (1.37 lb). The grenades are fired electrically, and their rocket motors are contained within the tails. The grenades have a body diameter of 75 mm (2.95 in) and can be fired to ranges between 100 and 250 m (109 and 273 yards), considerably more than most comparable projectors.

The MOD-T-22 CS rocket-launcher may be used from static or mobile positions. With the static positions, launchers may be placed around vulnerable areas, i.e. buildings likely to attract the attention of rioters during periods of civil unrest, or around installation perimeters. They can then be fired from a central control position as and when required. Mobile launchers are usually mounted on police or special anti-riot vehicles, and usually located close to a hatch so that they can be easily reloaded.

Specification
MOD-T-22 CS launcher
Internal calibre: 75 mm (2.95 in)
Length: 550 mm (21.65 in)
Weight: 4.5 kg (9.92 lb)

MOD-T-CS grenade
Calibre: 75 mm (2.95 in)
Length: 350 mm (13.78 in)
Weight: 0.62 kg (1.37 lb)
Range: 100 to 250 m (109 to 273 yards)

UK

Schermuly Multi-purpose Gun

The **Schermuly multi-purpose gun** has a calibre of 37 mm (1.456 in) to enable it to fire a wide range of anti-riot and other munitions, thereby warranting its multi-purpose designation. It can fire all manner of baton, smoke, irritant agent and other rounds.

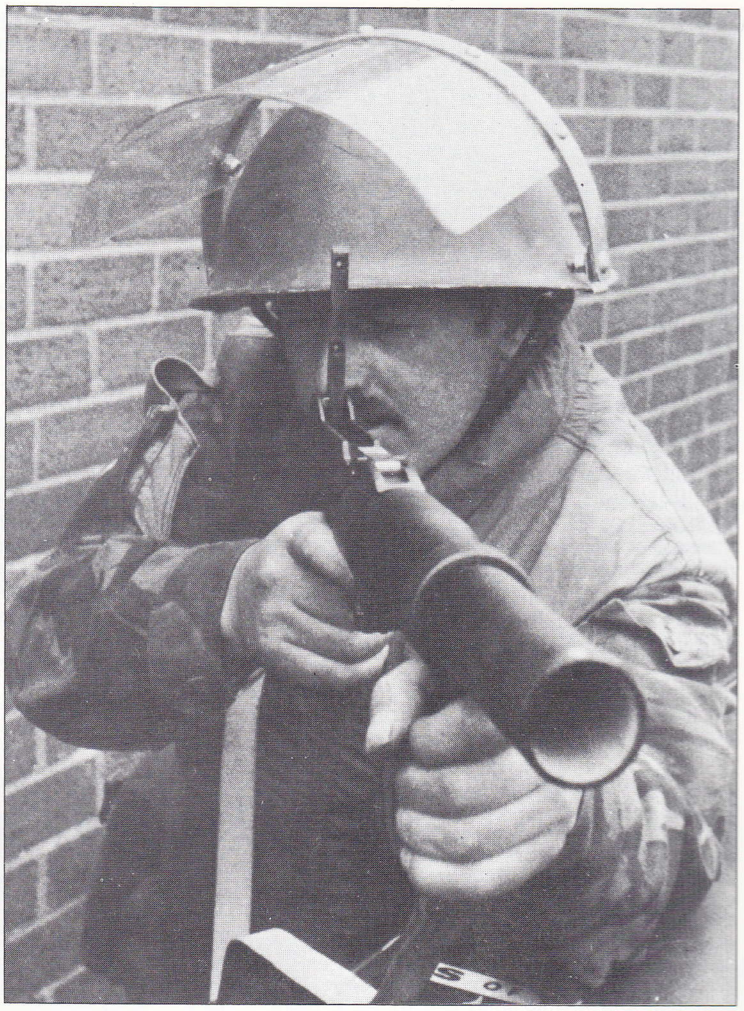
The Schermuly gun is produced by Webley and Scott but marketed by Schermuly. The basis of the weapon is a signal pistol, a much-updated version of a World War II design that now makes use of high-tensile aluminium alloys. The gun may be regarded as an enlarged version of the signal pistol, having a butt, a long smooth-bored barrel and a foregrip. Loading uses the conventional shotgun break-open system, and there is a large interlock device over the chamber to ensure the barrel is securely locked for firing; thus the weapon cannot fire unless properly closed. The double-action trigger demands a long and firm pull to ensure it does not go off accidentally and there is also an automatic rebound device in the striker mechanism to prevent a loaded gun from firing if dropped.

The Schermuly gun makes much use of aluminium and high-grade aluminium castings to keep down weight, but the result is a quality weapon that has been deliberately designed to have the 'feel' of an expensive shotgun, though the shotgun analogy is spoiled somewhat by the fact that leaf sights are fitted and a foregrip is provided under the barrel. Various barrel lengths can be produced, but one special feature of the Schermuly is that it can be fitted on the machine-gun weapon mounts of many armoured vehicles used in the internal security role, such as the Saracen armoured personnel carrier and the Shorland armoured car. Very often anti-riot guns can be of much more use than machine-guns in internal security operations so this provides the Schermuly gun with a valuable 'extra'.

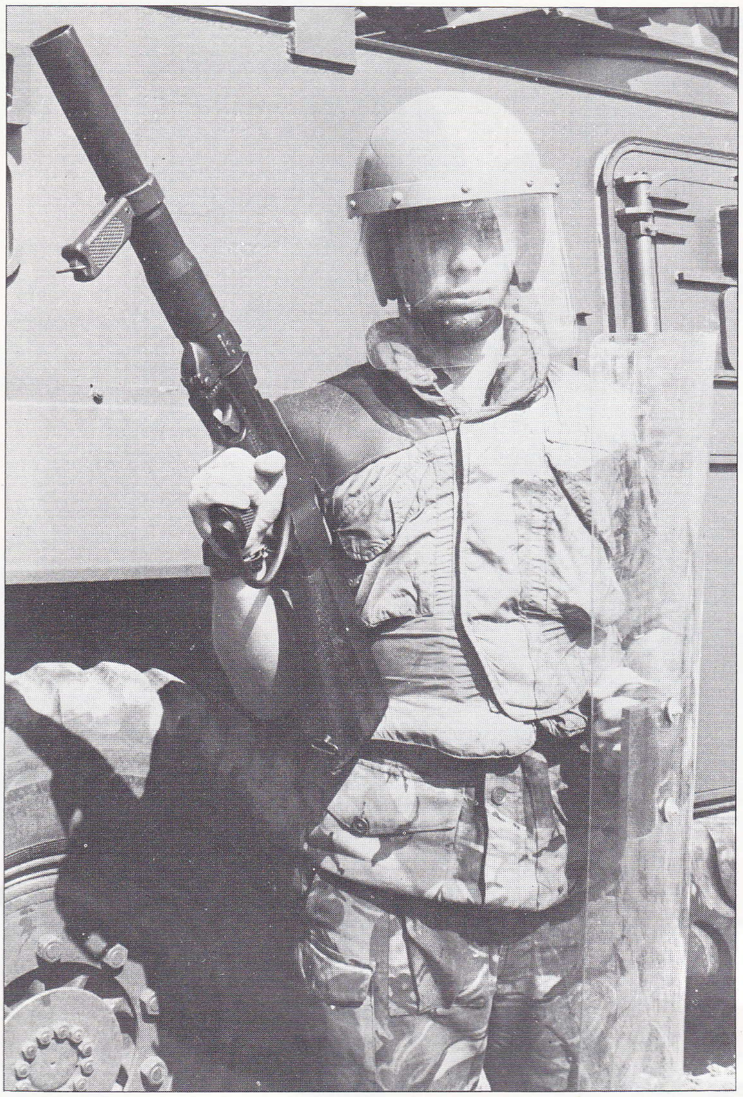
As mentioned above, the Schermuly gun can fire a wide range of munition types. It fires not only the usual 'official' rounds produced for the British Army but also many commercial products manufactured for a wider market. Schermuly is also known as Pains-Wessex, so it is not surprising to learn that the company also makes various anti-riot munitions to go with its gun. Available are irritant agent and other rounds, some of which are used by the British army, which has also used the gun.

Specification

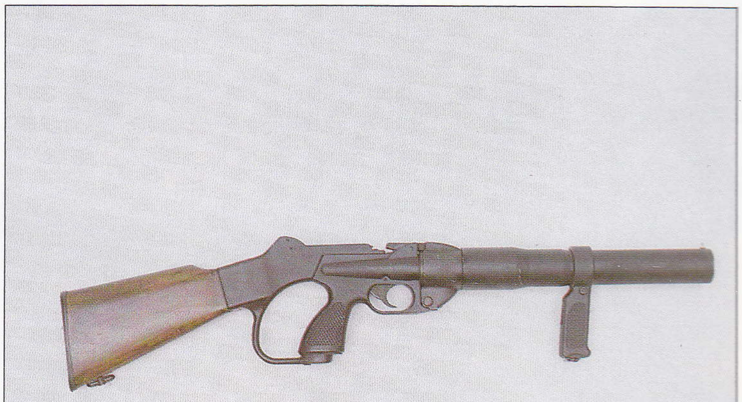
Schermuly gun
Calibre: 37 mm (1.456 in)
Length: 828 mm (32.6 in)
Weight: 3.18 kg (7 lb)
Range: up to 150 m (164 yards)



Above: The Schermuly riot gun is produced by Webley and Scott. It fires 37-mm (1.45-in) projectiles to a maximum range of 150 m and can be fitted to the machine-gun mounts on vehicles such as the Saracen APC.



Left: The Schermuly is made of light alloy, and different barrels, calibres and chamber configurations are all possible. The foregrip helps achieve accuracy as well as keeping the firer's hand away from a hot barrel, and is adjustable to suit the firer.



Above: Riot guns tend to be fired like shotguns, i.e. from a standing posture, and the Schermuly has been deliberately designed to handle like a shotgun for this reason. The hardwood butt attached to the pistol grip assembly also mounts the back sight.

Riot Control Vehicles

Bringing tracked personnel carriers on to the streets invariably leads to news reports of 'tanks quell riot'; besides, tracked APCs are expensive to maintain and not suited to internal security (IS) operations. These reasons led the British Army to retain obsolete wheeled APCs for use in Ulster, and many wheeled APCs have IS variants offered for sale.

In most countries the greater part of the army budget is spent in manning, equipping and training for conventional military operations with tanks, reconnaissance vehicles, armoured personnel carriers, air-defence weapons, artillery etc.

But in the last 25 years or so many armies have found themselves being used in riot control and internal security operations for which they have not been trained or equipped.

In the case of armoured vehicles this has led to the development of armoured vehicles specifically for use in internal security operations.

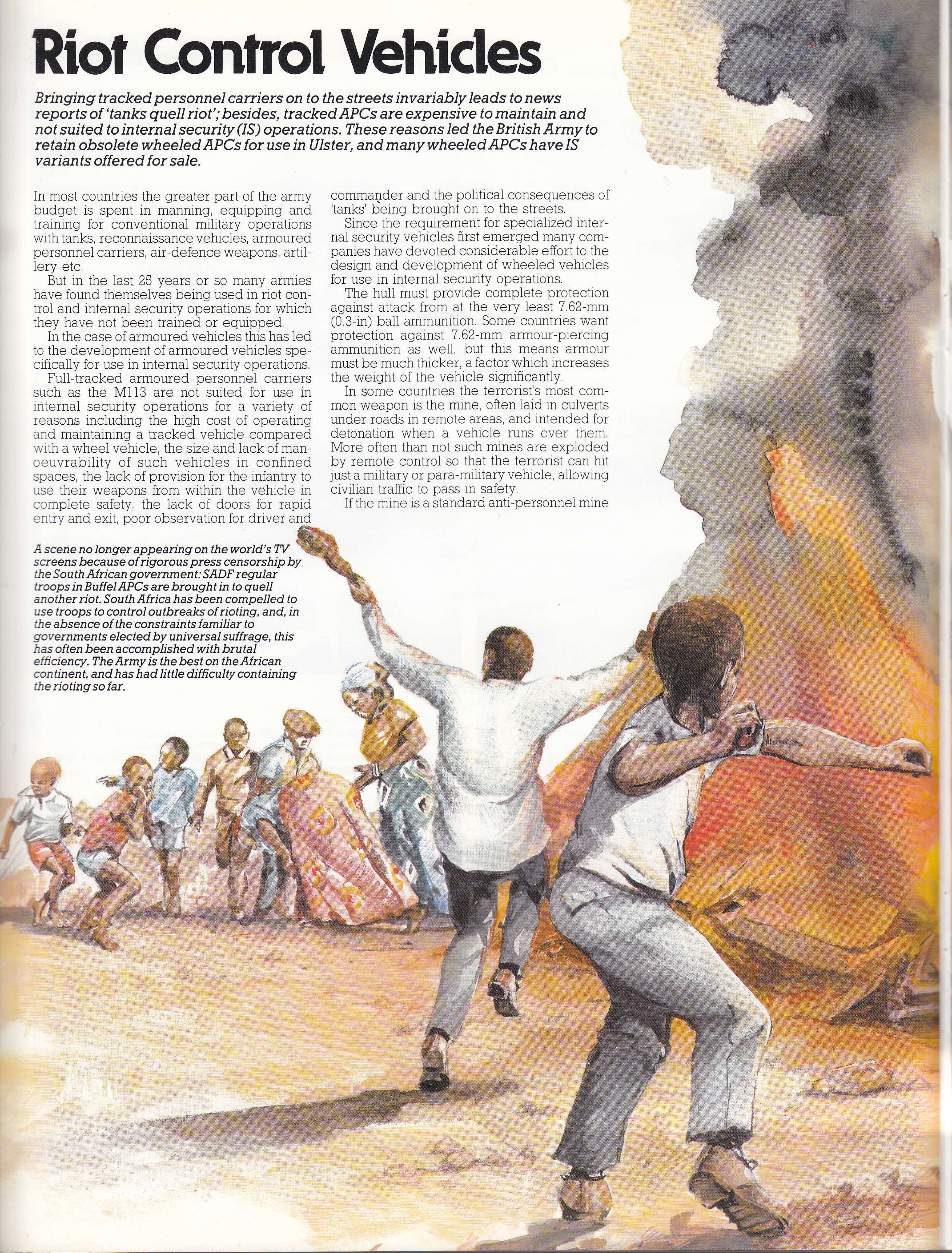
Full-tracked armoured personnel carriers such as the M113 are not suited for use in internal security operations for a variety of reasons including the high cost of operating and maintaining a tracked vehicle compared with a wheel vehicle, the size and lack of manoeuvrability of such vehicles in confined spaces, the lack of provision for the infantry to use their weapons from within the vehicle in complete safety, the lack of doors for rapid entry and exit, poor observation for driver and commander and the political consequences of 'tanks' being brought on to the streets.

Since the requirement for specialized internal security vehicles first emerged many companies have devoted considerable effort to the design and development of wheeled vehicles for use in internal security operations.

The hull must provide complete protection against attack from at the very least 7.62-mm (0.3-in) ball ammunition. Some countries want protection against 7.62-mm armour-piercing ammunition as well, but this means armour must be much thicker, a factor which increases the weight of the vehicle significantly.

In some countries the terrorist's most common weapon is the mine, often laid in culverts under roads in remote areas, and intended for detonation when a vehicle runs over them. More often than not such mines are exploded by remote control so that the terrorist can hit just a military or para-military vehicle, allowing civilian traffic to pass in safety.

If the mine is a standard anti-personnel mine



A scene no longer appearing on the world's TV screens because of rigorous press censorship by the South African government: SADF regular troops in Buffel APCs are brought in to quell another riot. South Africa has been compelled to use troops to control outbreaks of rioting, and, in the absence of the constraints familiar to governments elected by universal suffrage, this has often been accomplished with brutal efficiency. The Army is the best on the African continent, and has had little difficulty containing the rioting so far.

or small anti-tank mine, the vehicle designer can help to minimize the damage to the vehicle by careful design of the hull armour so that the blast is deflected sideways and upwards and not contained within the hull of the vehicle. For example, the British Saxon vehicle has integral hull with the areas above the wheels being of sheet steel so that they blow away in the event of a vehicle running over a mine. The South African Rhino and Bulldog armoured personnel carriers have a V-shaped hull raised well above the wheels so that if the vehicle runs over a mine the wheels and suspension take the blast, not the hull.

Diesel fuel preferred

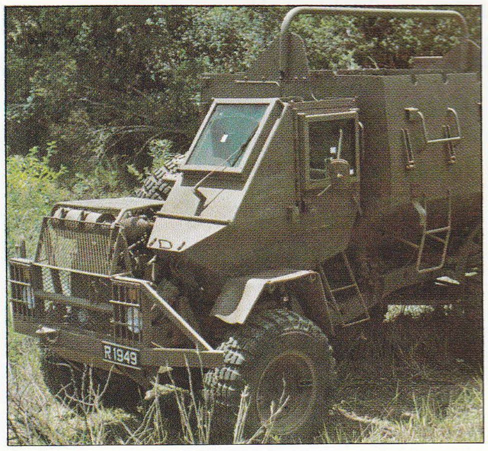
Diesel engines are preferred to petrol engines in internal security vehicles not only because they are more fuel efficient but because diesel fuel does not catch fire as easily as petrol. In any case the position of the fuel tank is critical in an internal security vehicle.

The commander, driver and troops must have excellent all-round fields of vision through windows which must provide the same degree of protection as the remainder of the hull. The commander's and driver's windows must have wiper and special cleaning liquids to remove any paint thrown by demonstrators.

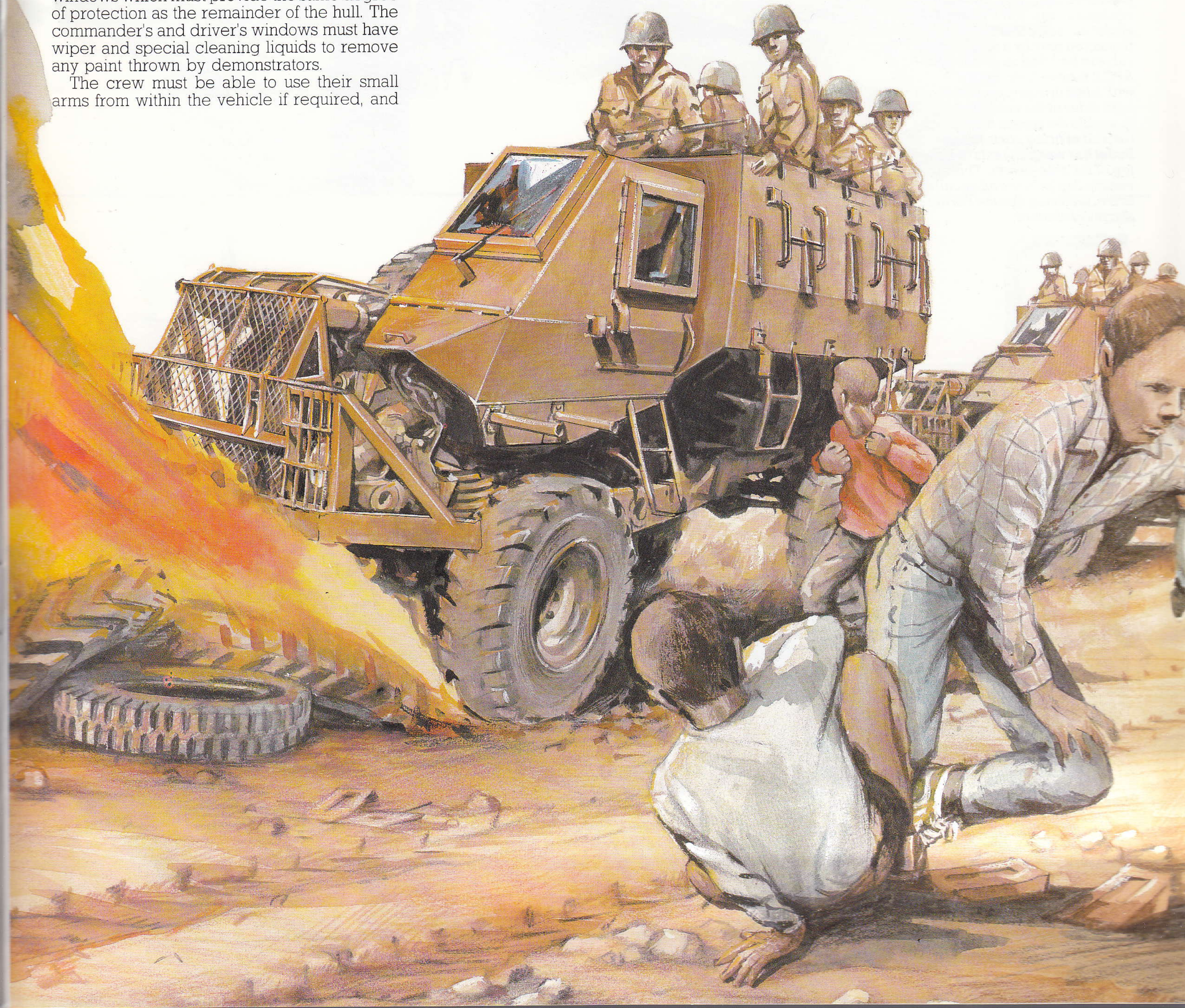
The crew must be able to use their small arms from within the vehicle if required, and the means of entry and exit must be as numerous as possible. If, for example, the main door were at the rear and the vehicle was ambushed from the rear, the occupants would not be able to leave the vehicle in safety. The doors and handles must be designed so that unauthorized entry is not possible, and there must be no attachments that assist rioters to climb onto the vehicle.

The tyres must be of the run-flat type to enable the vehicle to be driven some distance with bullet-damaged tyres. The vehicle should also have a fire detection and suppression system, especially around the wheel arches: rioters often throw petrol bombs at the internal security vehicle's rubber tyres, which easily catch fire.

The roof of the internal security vehicle must be sloped so that any grenades that are thrown onto the roof roll off before exploding. The openings around the doors and engine compartment must be carefully designed so that any flaming liquids from petrol bombs run down to the ground and not into the vehicle.

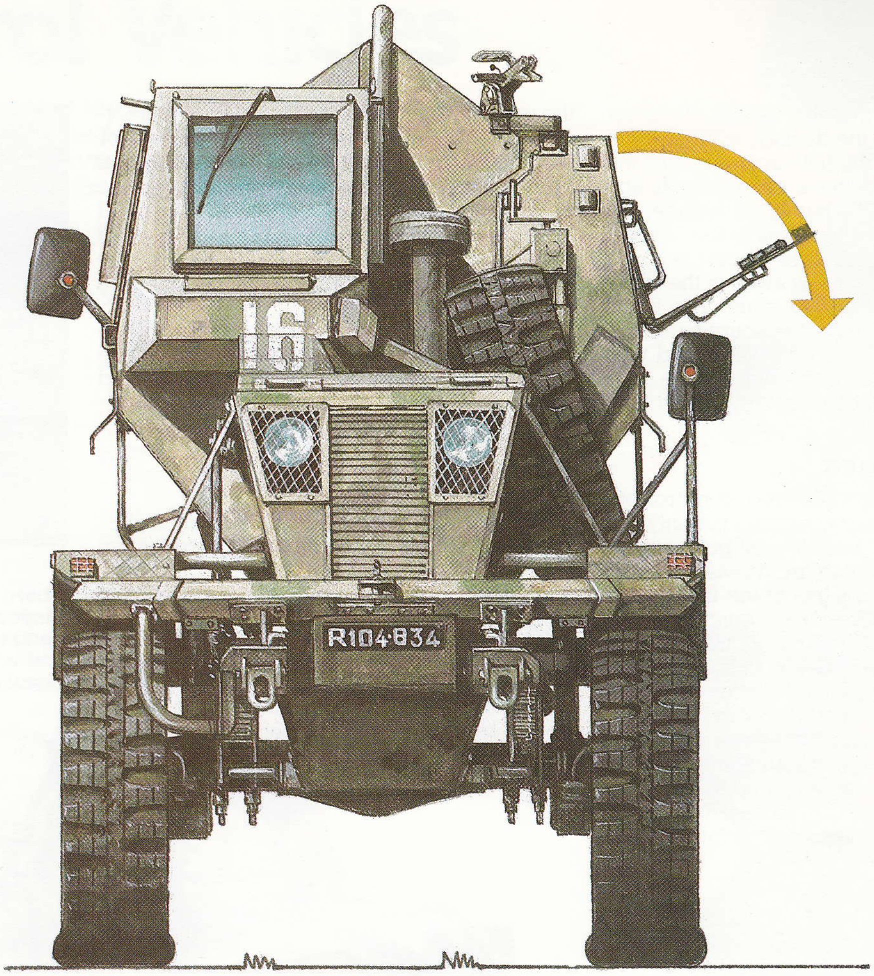


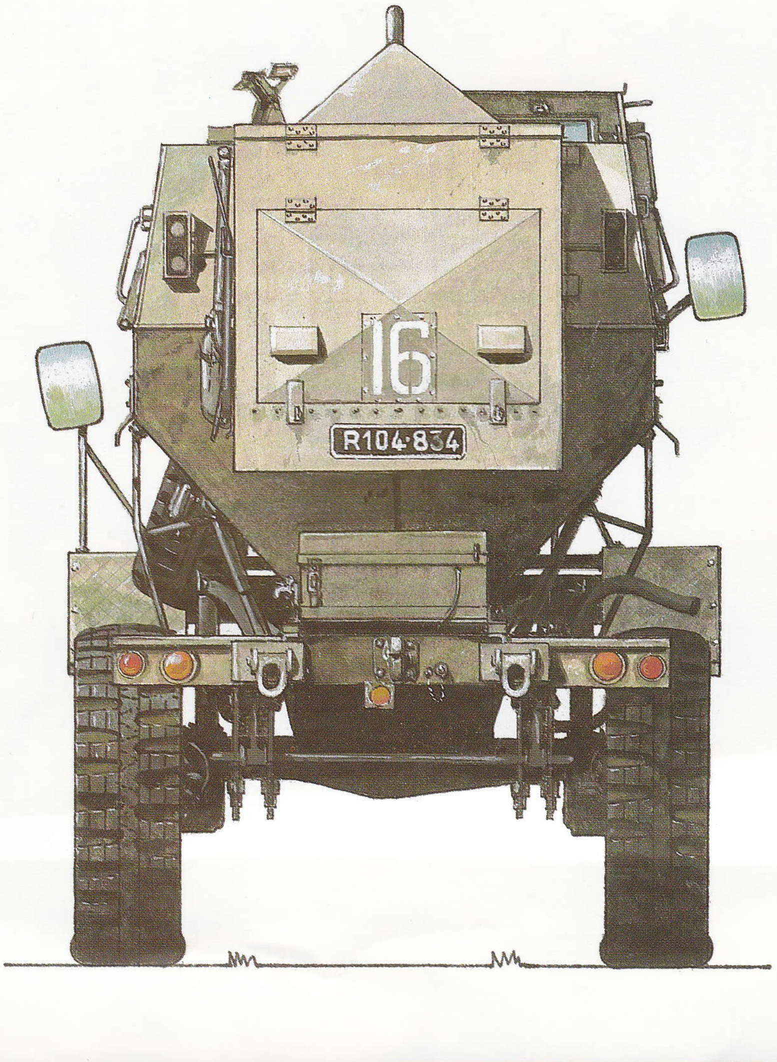
Above: The Buffel is one of South Africa's increasing range of home-produced military vehicles, and its design reflects South African combat experience both at home and in operations in Namibia and Angola.

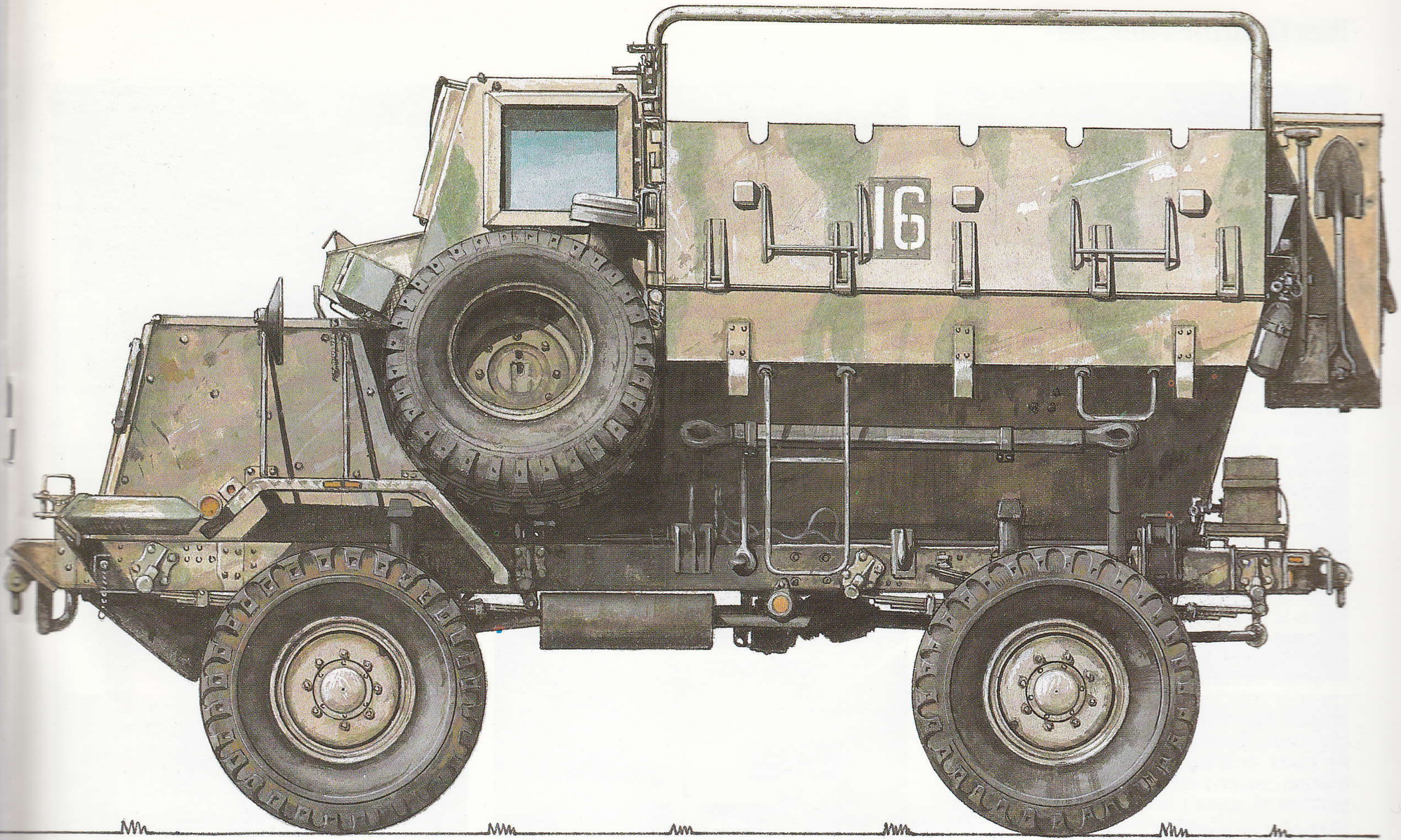


Buffel

The unique Buffel Armoured Personnel Carrier is based on the chassis of the Samil 50 truck. The pronounced 'V'-shaped hull, designed to deflect the blast of a land mine, reflects South African combat experience in Namibia; SWAPO guerrillas have proved adept at laying well-concealed land mines on dirt roads, and the outlawed African National Congress (ANC) has begun a similar campaign in border areas of South Africa. The Buffel has been produced in several different configurations, some with engine enclosed, and others with it protected only by a mesh screen. The cab can be fitted on either side. As an APC it is obviously designed to deal with a lightly equipped enemy. The high sides of the vehicle swing down to enable the troops to dismount. Instead of firing ports proper, the Buffel has weapon rests cut into the top of the side-pieces. This top-heavy vehicle can provide an exciting drive, teetering around corners in an alarming manner.



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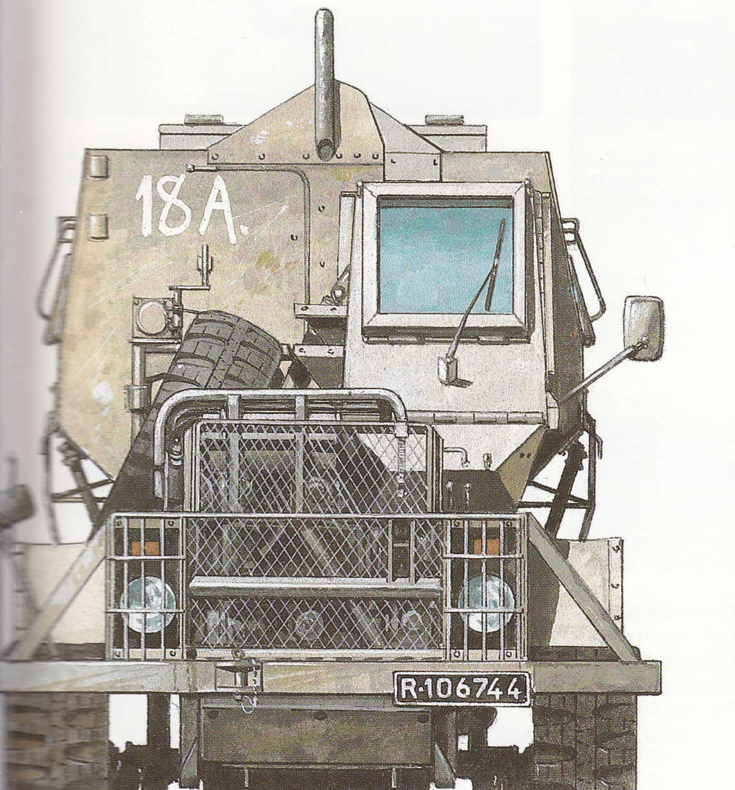
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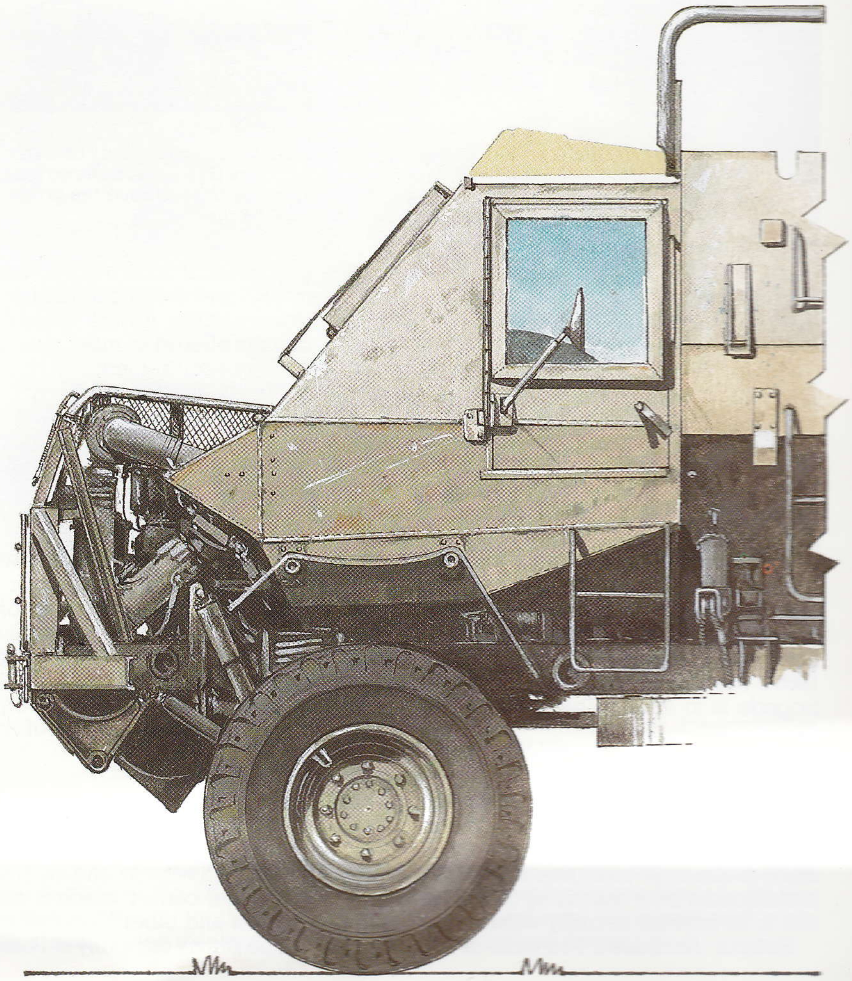
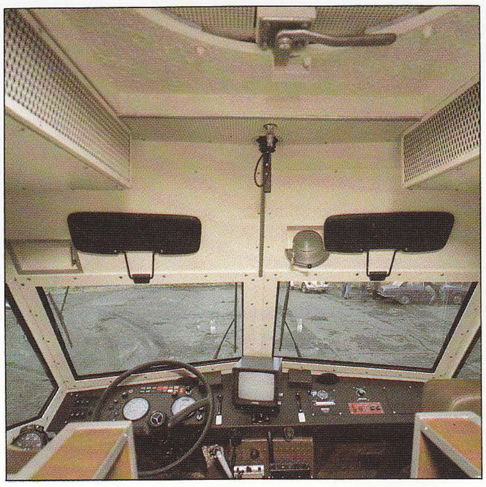


Riot Control Vehicles

Many wheeled APCs serve in the internal security role with various degrees of modification. The Vickers Valkyr can carry a wide variety of equipment for this task, including a barricade removal device, smoke grenade launchers and tear gas bottles.

The AT-105 Saxon, ordered for the British Army, has been bought by several countries to serve in a paramilitary capacity. Malaysia purchased 40 vehicles in 1977 for a total cost of $4.7 m.



An interior view of the Transaif shows the good visibility through armoured glass. The monitor on the dashboard allows the driver to see what is behind the vehicle.

The Transaif multi-role internal security vehicle, which appeared in 1985, offers most of the abilities of a military APC but at a more reasonable cost.

As the troops or police may have to stay inside the vehicle for a considerable period the interior must be insulated and provided with a heater/cooling system. The seats must be provided with seat belts because if the vehicle does run over a mine many of the casualties could otherwise occur as the occupants are thrown around the interior of the vehicle. Adequate stowage space must be provided for riot shields, weapons and other essential equipment such as communications systems.

Some internal security vehicles are fitted with turret-mounted 7.62-mm or 12.7-mm (0.5-in) machine-guns, while others have a simple armoured observation cupola for the commander. Some vehicles also have specialized equipment (for example, a barricade removal device at the front of the vehicle), while others can be fitted out as specialized command post vehicles or ambulances. The type can also be used to carry EOD (explosive ordnance disposal) teams and their specialized equipment such as remote-control devices fitted with TV cameras and other appliances. Some internal security vehicles are fitted with tear gas launchers or even water cannon.

Some countries use standard military wheeled armoured personnel carriers for the internal security role while others prefer cheaper vehicles based on standard light truck chassis, Mercedes-Benz and Land Rover vehicles being the most favoured as these are used by many defence and police forces, thereby making training and the provision of maintenance and spare parts much easier.

Internal security APCs

Some wheeled APCs are used in internal security role. These include the MOWAG Roland, MOWAG MR 8 family, MOWAG Piranha range of 4×4, 6×6 and 8×8 vehicles, Verne/Arrowpoint Dragoon, Cadillac Gage V-100, V-150, V-200 and more recent V-300 Commando family, Cadillac Gage Commando Ranger, Humber 'Pig' used extensively by the British army in Northern Ireland (one even turned up in Malta during the hijacking of an Egypt Air Boeing 737 aircraft late in 1985), Alvis Saracen, GKN Sankey AT-105 Saxon, ENGESA EE-11 Urutu, SIBMAS, Vickers Defence Systems/BDX Valkyr, Fiat Type 6614, Renault VAB, Berliet VXB-170, Panhard VCR, Panhard M3, ACMAT, BMR-600, BLR-600, Ratel, Transportpanzer, Condor, UR-416, TM 170, and the Soviet BTR series of 6×6 and 8×8 vehicles.

Internal security vehicles based on the West German Mercedes-Benz chassis include the Thyssen Maschinenbau UR-416, of which over 800 have been built since 1969, and the more recent TM 170 and TM 125. Both of the latter are fully amphibious, which makes them ideal for civil and military operations. The TM 170 has already been selected by the West German border guard as the replacement for its older MOWAG MR 8 4×4 vehicles which have now been in service for some 20 years. Late in 1985 it was revealed that the British army Berlin Brigade is to acquire over 100 of these vehicles.

Since 1965 Shorts of Northern Ireland have built well over 1,000 of their Shorland armoured patrol cars for sale to some 40 countries. In 1974 the Shorland SB 401 armoured personnel carrier was introduced and sales of this have been made to almost 20 countries. As Land Rover has introduced a new chassis so Shorts have used this in its internal security vehicles.

Hotspur Armoured Products of Wales has also introduced armoured personnel carriers in 4×4 and 6×6 configuration using the Land Rover chassis. A wide range of optional equipment is offered to meet virtually any police or military requirement.

The Italian Fiat 11A7 A Campagnola 4×4 light vehicle is used by many countries, so the Mondialpol Trading Company has recently built prototypes of an internal security vehicle based on this chassis.

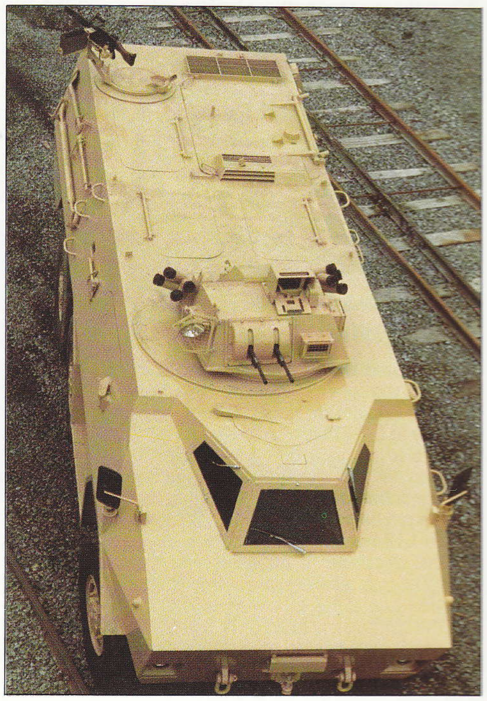
The Advanced Security Agency SpA of Milan has been engaged in the design and development of the Guardian range of 4×4 internal security vehicles for some time, and now offers such vehicles not only on the original Fiat Campagnola chassis, but also on the more recent Land Rover One Ten and Mercedes-Benz 280 GE chassis. As with most vehicles of this type, optional equipment ranges from winches to bulletproof tyres and a public address system.

In addition to making the Swiss MOWAG Piranha range of 4×4 and 6×6 vehicles under licence, Chile also builds the VTP-2 which is similar in some respects to the West German Thyssen IS vehicle, and the Multi 163 armoured personnel carrier which is also used to patrol airports and other high-risk areas.

The Bravia company of Portugal has built the

A Buffel heads purposefully into the terrain for which it was designed: although APCs can often double as Internal Security vehicles, the reverse is not often the case. As with all military procurement, you pays your money and you takes your choice.

Above: On patrol in Northern Ireland with a Humber 1-ton APC. Five hundred 'Pigs' are retained by the British Army as IS vehicles.



Right: The Belgian SIBMAS APC is fitted with a Vickers turret with twin 7.62-mm machine-guns and with another 7.62-mm GPMG at the rear.

Above: An interior view of the Transaif shows the greater crew comfort afforded to police or paramilitary personnel, compared to soldiers crammed into APCs built for the battlefield.

The Vickers Valkyr can serve in a wide variety of roles, from basic APC to weapons carrier, command post, ambulance and internal security vehicle. The latter role is becoming a standard variant to wheeled personnel carriers.

Chaimite range of 4×4 armoured personnel carriers, whose versions are almost identical to the American Cadillac Gage V-100 family. For the National Guard the company has built the Commando Mk III armoured personnel carrier which is similar in concept to (but somewhat larger than) the British Shorland vehicles.

Warsaw Pact riot control

While Western countries have developed many vehicles that are suitable for use in internal security operations, the Warsaw Pact countries (the USSR in particular) have not developed any vehicles specifically for this role and if riots do happen, which they do only rarely, then the police are used with the army as back-up.

Events in Afghanistan have shown, however, that the BTR-60/BTR-70 series of 8×8 armoured personnel carriers do suffer from a number of drawbacks, and some of these vehicles have been fitted with additional armour protection and improved firepower, including an AGS-17 automatic grenade-launcher.

Many years ago East Germany built two vehicles for internal security operations. These were the SK-1 armoured car and the SK-2 armoured water cannon. The SK-1 is very similar in appearance to the Soviet BA-64 armoured car of World War II, and is armed with a turret-mounted machine-gun. This vehicle was never used by the East German army but issued to police and security troops and finally to workers' militia units.

The SK-2 armoured water cannon was built on the chassis of the G5 6×6 truck used in large numbers by the East German army. Mounted on the roof, to the rear of the cab, is a high-pressure water cannon which can be traversed through 360° and elevated from −10 to +45°. This cannon has a range of about 70 m (77 yards). An unusual feature of the SK-2 is the method used to refill the water tanks: the vehicle is driven over a main water manhole, the gunner opens a door in the floor, lowers a filler pipe and connects this to the main, and it then takes between eight and 10 minutes to refill the water tank. The SK-2 has been used against rioters in East Berlin.

Given the current political situation in many parts of the globe, in the future even more internal security vehicles are likely to be developed and employed by armies and paramilitary units around the world.

UK

Grenade Discharger L1A1

When the current outbreak of troubles in Northern Ireland began in 1969 the British army was ill-equipped to carry out many of its internal security duties. For a while it was forced to make purchases of often-unsuitable riot munitions launchers from the USA or to rush into use hasty conversions of old signal pistols. Typical of the latter was the **L67A1** riot gun, a conversion of an old World War II signal pistol to take a rifled barrel, simple sights and a rudimentary butt. The L67A1 may still be encountered, mainly in training roles, but it was an awkward weapon to use, not very accurate and prone to damage.

Something better was required, and came in the form of the **Grenade Discharger L1A1**. This was designed specifically to fire CS grenades, and at first sight seems to be a very simple weapon. Simple it is, but with a number of important safety and handling design features.

The L1A1 is muzzle-loaded, and after the grenade is inserted into the launcher cup a safety sequence of operations has to be followed to ensure that the grenade is fired only when it is required and not at any other time. First, a cocking plunger located at the fore end of the pistol grip has to be pressed. The safety catch must then be pressed and only then does pressure on the trigger, while the safety is still held down, fire the grenade. The firing pulse comes from two ordinary U2 batteries behind the butt plate.

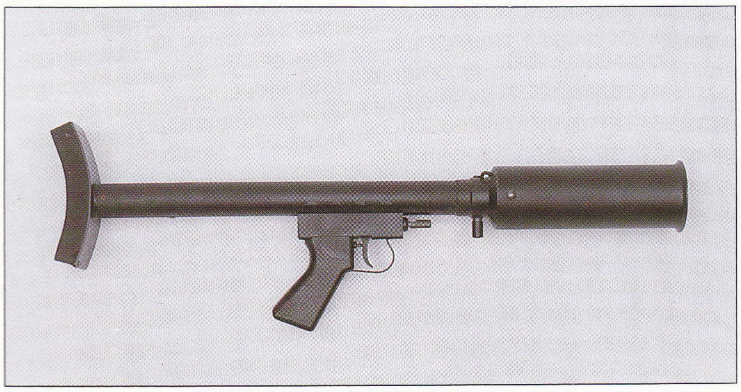
The L1A1 can launch grenades to a range of about 100 m (109 yards) and the type of grenade fired is one that cannot be picked up and returned; however, the L1A1 is not just a riot gun, for it can also fire smoke and marker grenades for battlefield operations, although it is not often so used.

The design sophistication of the L1A1 is such that it can be easily stripped for maintenance and cleaning, and its simple construction also makes it very robust. It is also easy to handle in action, although it cannot be said that it is an accurate weapon. Having been designed to fire mainly CS grenades it is an area weapon and there is little chance that it will ever hit a point target. It cannot fire baton rounds.

The L1A1 was produced at the old Royal Small Arms Factory at Enfield Lock in Middlesex, now Royal Ordnance, Small Arms Division. It is no longer in production.

Specification

Grenade Discharger L1A1
Calibre: 66 mm (2.6 in)
Length: overall 695 mm (27.36 in)
Weight: 2.7 kg (5.95 lb)
Range: 100 m (109 yards)



The L1A1 replaced the various grenade launchers acquired by the British Army when troops were sent to Northern Ireland in 1969. It is a single-shot muzzle loader which fires its grenade electrically, current being provided by a pair of standard U2 dry cells.

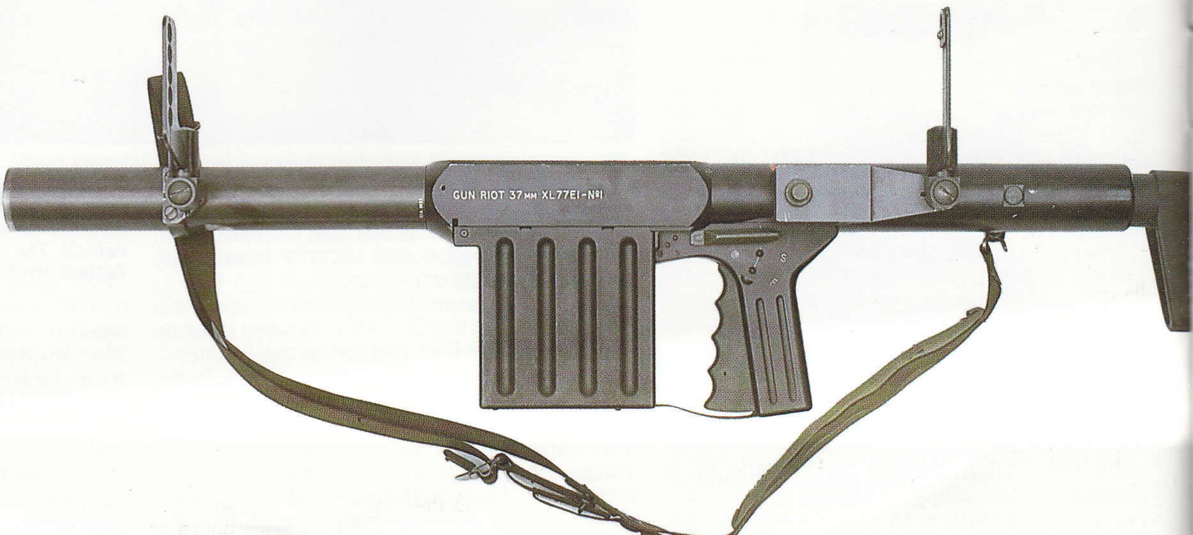
The L1A1 is designed to fire 550-g CS gas grenades into a crowd from outside the range of hand-thrown missiles. Its grenades are so designed as to make it impossible for rioters to smother them or throw them back.

UK

Arwen

The **Arwen** (Anti-Riot Weapon ENfield) is something of an innovation and certainly an advanced design in comparison with many contemporaries. It is a very sophisticated piece of engineering that can perhaps be called a weapon system, as it is a riot munition launcher allied to a novel range of ammunition. The Arwen is produced by Royal Ordnance, Small Arms Division, at Enfield Lock, Middlesex.

Arwen has a calibre of 37 mm (1.456 in) and may be considered as two tubes joined together by a rotary magazine. The rear tube holds a butt plate and can be adjusted telescopically to suit the firer. The rear tube is joined to a firing mechanism, complete



This automatic 37-mm weapon was one of three prototype designs built and tested at the Royal Ordnance Factory at Enfield.

with pistol grip, while the forward tube is the barrel with its corrugated cooling profile. The barrel is fitted with a foregrip, also adjustable in position to suit the firer. Between these sections is the rotary magazine that holds five rounds. The firing mechanism is simple and controlled by the trigger. Pulling the trigger rotates the magazine until a round is in line with the chamber. Further trigger pressure fires the round. Leaf sights are provided, for Arwen is more accurate than most similar weapons.

Five types of round are fired from Arwen, although not all may be encountered operationally. The main anti-riot munition is a baton round with a mushroom-shaped head that provides the PVC projectile with a good ballistic trajectory, allowing deliberate aim at point targets to be made. The others include a CS round, a screening smoke round, a baton round with a CS element and a round that fires a projectile to penetrate thin barricades while carrying some form of irritant agent. It is possible that this last round will not be placed in production. The main design point regarding all these rounds is that their aluminium cases act as their own firing chambers. At the instant of firing each round has it own internal charge and is fired with support provided by sprockets at the front and rear of the rotary magazine – the rest of the case is quite unsupported as only relatively small propellant charges are used.

Arwen can be fired with a good degree or accuracy up to a range of about 100 m (109 yards) using the baton round. The usual rate of fire, including ejecting spent cases and reloading through a rim on the right-hand side of the magazine, is about 12 rounds per minute. These two factors make Arwen a formidable anti-riot weapon, and the weapon has already been purchased by many police and security forces, especially in the USA, where it is now a favoured weapon for guards in maximum security penal establishments.

Specification

Arwen

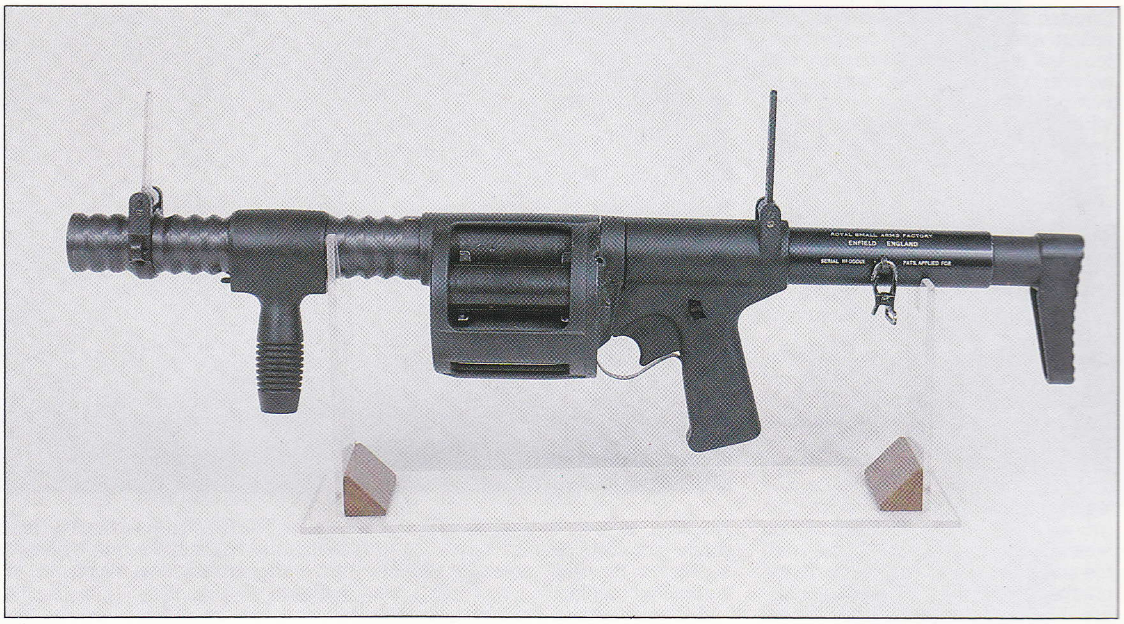
Calibre: 37 mm (1.456 in)

Length: adjustable from 760 to 840 mm (29.9 to 33 in)

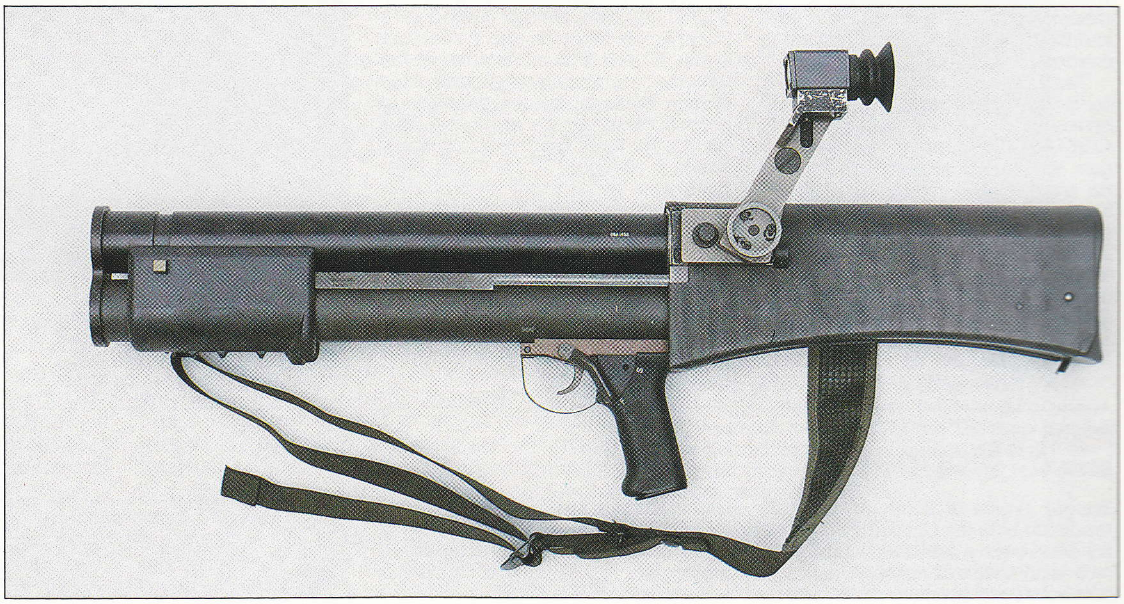
Weights: empty 3.1 kg (6.83 lb); loaded 3.8 kg (8.36 lb)

Magazine capacity: 5 rounds

Range: baton round 100 m (109 yards)



Above: The production model of the Arwen has a 5-round rotary magazine adapted from the revolver principle. After firing it ejects the spent cartridge case and rotates a new round in line with the barrel.



Anyone who thinks a pump action shotgun makes a menacing sound when the action is operated should hear the awesome mechanism of this pump action Arwen prototype, which is a deterrent in itself.

WEST GERMANY

TRGG Portable Irritant Agent Projector

At first sight the West German **TRGG** portable irritant agent projector resembles a flamethrower: it is carried on a backpack bearing flamethrower-type tanks, and the user aims and fires the irritant agent using a hand-held projector that looks very like a flamethrower gun. In fact the analogy is quite close, but the TRGG is designed to project an irritant agent instead of a flame jet.

The backpack of the TRGG has two tanks: one contains the agent and the other a pressurizing gas, usually carbon dioxide. When the user pulls a trigger on the projector the pressurized gas forces out the agent from its tanks and along a flexible tube leading to the projector. The agent concerned can be any one of a number from tear gas to CS. The weapon can also project powerful dyes to mark rioters for later apprehension.

The TRGG has a maximum operational range of 20 m (21.9 yards). The contents of the tanks are sufficient for about 80 jets of agent, and each jet is usually automatically monitored to prevent waste or excessive concentrations of agent. When refills are required the tanks can be quickly and easily changed (within a few seconds) without recourse to tools. This is usually done by a person other than the user who would otherwise have to remove the carrying frame for reloading.

Riot-control devices such as the TRGG are not favoured by some police and paramilitary forces. The very appearance of the TRGG is distinctive and makes it and its user a target for possible retaliation, while the weight of the equipment is such that the user is unable to move very rapidly if circumstances demand it. The device also has a relatively restricted range. The 20 m (21.9 yards) mentioned above may not be achieved against even a slight headwind and at longer ranges the irritant agent can be dispersed to such an extent that it may have little effect on determined rioters. At closer ranges, however, it is a formidable deterrent. But again, at these short ranges the TRGG requires a considerable degree of protective support and many police or paramilitary forces might not think that it deserves such an outlay of manpower. To date the TRGG has seen little use outside West Germany although organizations elsewhere have investigated its possibilities.

The TRGG is produced by Heckler & Koch GmbH at Oberndorf-Neckar.

Specification

TRGG

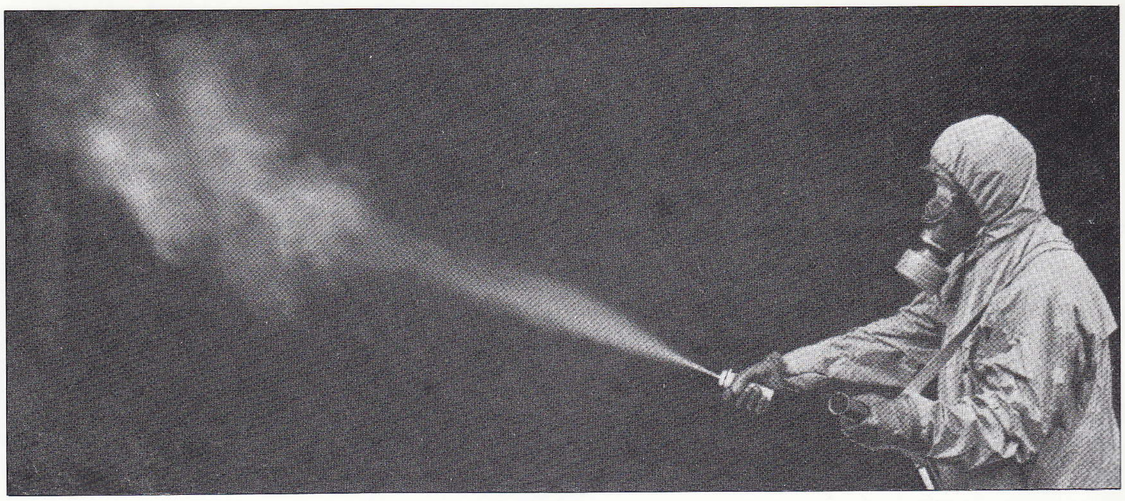
Weights: empty 10.5 kg (23.15 lb); full 20.5 kg (45.2 lb)

Maximum range: about 20 m (21.9 yards)

Number of jets: about 80

SWEDEN

BAT Riot Munitions



Above: The BAT grenade can be fired from grenade launchers, thrown by hand or used for close-range personal defence by striking the impact fuse against a hard surface, which makes it discharge the gas in a powerful jet aerosol.

Sweden is not normally reckoned as a nation where riots are a major problem, but the Swedish authorities take no chances and keep a close eye on riot-control equipment used elsewhere. During the 1970s their observers noted that many current anti-riot grenades were not very efficient as most could be picked up and returned to their previous owners. Grenade-launchers, if used, were also very inaccurate. The Swedes decided that if they were to have such munitions they would design their own, and invited a private concern to produce something suitable.

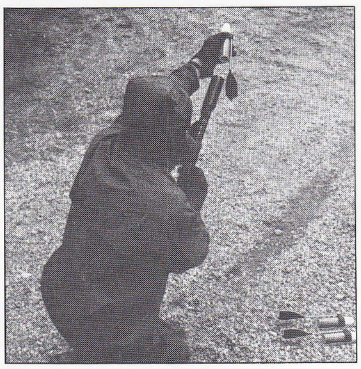
The result was a device known as the **BAT grenade**. This is a 40-mm (1.575-in) diameter can-type grenade with a filling of CS (Swedish law prohibits the use of any other agents within Sweden) fired from a muzzle-mounted launcher on an in-service weapon. As the grenade strikes the ground a protruding glass tip is broken which then releases the CS but with the added feature that the CS is driven out by internally generated gas pressure. This internal pressure is sufficient for the contents to act as a form of rocket motor, making the grenade streak about erratically, emitting CS all the while. The effect is that the grenade is almost impossible to grasp and its path is difficult to predict. The CS cloud is emitted for up to three seconds.

The accuracy requirement was met by fitting a detachable 40-mm (1.575-in) launcher onto the muzzle of a 9-mm (0.354-in) Carl Gustav sub-machine gun, although other similar weapons do equally well. The grenades are fired using ordinary blank cartridges and adequate accuracy at ranges up to 200 m (219 yards) can be obtained. Up to 10 grenades a minute can be fired using the semi-automatic mode of the Carl Gustav sub-machine gun. The Swedish police have purchased the BAT grenade and its launcher, and more have been sold to Denmark and Norway. Many other organizations, some including special forces, have evaluated the BAT grenade and its associated launcher.

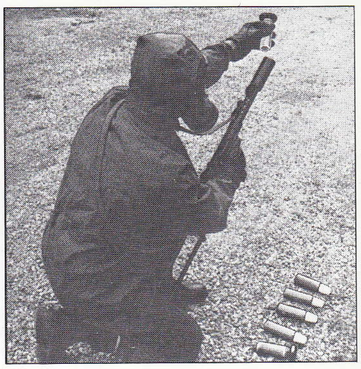
A by-product of the research that led to the BAT grenade is the **BAT aerosol generator** that can be used with virtually any irritant agent. This device is portable, weighing about 5 kg (11 lb), and can be carried on a backpack or under an arm. A pressure bottle is used with a container of the irritant agent, and by careful use of the system controls various densities of aerosol cloud can be produced. This system has been purchased by police forces in Sweden, Norway and Denmark and has aroused interest elsewhere, usually with CS in mind.

Specification

BAT grenade
Calibre: 40 mm (1.575 in)
Length: 120 mm (4.72 in)
Weight: 150 grams (0.33 lb)
Maximum operational range: 200 m (219 yards)



To deal with point targets, for example to shoot gas grenades through a window to flush out a sniper, stabilizers can be fitted.



If an area covering is needed, for instance when dealing with crowds, the projectile is also provided with an impact absorber/stabilizer.

SOUTH AFRICA

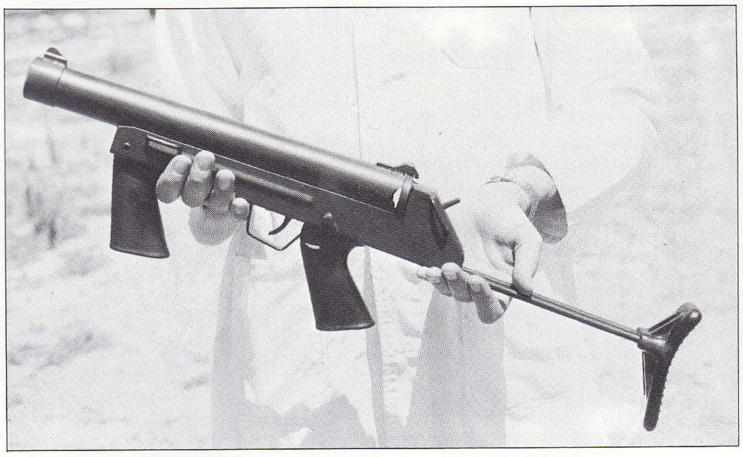
Stopper

Recent events in South Africa have tended to hide the fact that civil unrest has long been a feature of South Africa's mixed racial society, and the police forces there have always been well schooled in anti-riot tactics and equipment. One of their latest items of equipment that has been prominent in newsreels is a riot control weapon known as **Stopper**.

Stopper is an orthodox design with a smooth-bored barrel having a calibre of 37 mm (1.457 in). It is used to fire a variety of projectiles including baton rounds, irritant agent rounds and even paramilitary rounds such as smoke and illuminating. The weapon itself is very simple, being little more than an oversized break-open shotgun with a body made from metal stampings. The twin pistol grips are interchangeable and the butt is a simple assembly that retracts into the body when not required. Rudimentary sights set at 50 m (55 yards) are provided. Stopper is very easy to use as little more is required of the user other than knowing how to load it (just like a shotgun) and pulling the trigger after pulling back the external hammer. Stopper has been produced with the realization that it will get very little care in use or storage. The matt black finish is covered with a thin film of dry lubricant that prevents rust and other corrosion over the entire service life of the weapon. Stopper is usually issued fitted with a shoulder sling.

The main anti-riot rounds used with Stopper are CS and the usual baton rounds. The baton rounds are simple flat-nosed PVC or rubber slugs with no design finesse, while the CS round is also a straightforward design that starts to emit fumes following a 1.5-second delay after firing. Both rounds use aluminium cartridge cases. The CS round continues to emit gas for between six and 25 seconds depending on the local conditions. It has been demonstrated that it can be grasped and thrown while still emitting its CS fumes.

Stopper can be fired from the shoulder or hip and its effective range is limited to a maximum of about 100 m (109 yards). It can be fired to a maximum of approximately 300 m (328 yards), but at that range it is very inaccurate and baton rounds will have virtually no stopping power. It is also not very accurate even at its operational ranges and can only be used effectively as an area weapon unless the target is very close.



The Stopper is a brutally simple 37-mm smooth-bore riot gun firing either CS gas shells or baton rounds. The twin pistol grips are interchangeable, and the butt can retract into the body of the weapon. Its matt black finish is covered with dry lubricant to protect it from corrosion.

Specification

Stopper
Calibre: 37 mm (1.457 in)
Lengths: butt extended 700 mm (27.56 in); butt retracted 506 mm (19.92 in); barrel 390 mm (15.35 in)
Weight: with sling 3.7 kg (8.157 lb)
Range: operational 50 to 100 m (55 to 109 yards); maximum 300 m (328 yards)

Anatomy of a Riot

Television pictures of burning cars and a stone-throwing mob embattled with army or police units give the impression of total chaos, but experience has shown that crowd behaviour tends to follow certain patterns. Whichever service has the disagreeable task of riot control, the aim is to limit the damage and ultimately break up the mob without recourse to unneccessary violence.

It has been argued that, in a democracy, various forms of violence (ranging from assassination to a well-placed rotten egg) can be and often are a legitimate defence against dictatorship, incompetence and even chronic pomposity. This is not to suggest that all windbag politicians should be shot, but merely to point out that acts of violence are as much part of the political process as election promises, kissing babies and deals struck in smoke-filled rooms.

Of course, whether an act of political violence is justified or not depends very much on one's point of view; and one cannot argue that it is justified as long as it represents the will of the majority, because the majority can often be as unpleasant as any dictator, or simply may not care one way or the other.

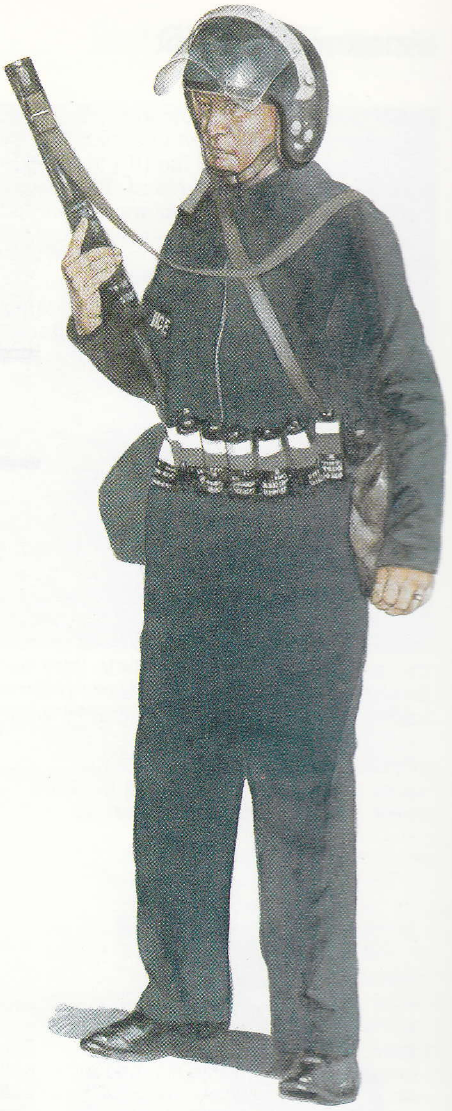
The time-honoured method of expressing disapproval en masse remains the humble riot, and democracy the world over owes much to governmental fear of the mob. Paradoxically, totalitarian regimes very often owe their existence to control of the mob. So if a rioting mob represents society's lowest common denominator, it could be argued that both fascism and communism are in one sense more democratic (i.e. more responsive to the demands of the lower sections of society) than are other more liberal regimes. Whether or not the lower sections of society should be heard in the first place has been debated for many, many thousands of years: if nothing else, Pontius Pilate made a very democratic decision. But before one gets carried away with the idea that all mobs, all riots are composed of the uncaring, the uninformed and the unwashed, it must be said that the collective IQ of the mob will rapidly sink to the IQ of the stupidest people present. There is something about the sheer violent exhilaration of being part of a mob that appeals to the animal (and possibly the tribal) instinct in all of us. And quite often it is the most rational and civilized of human beings who are capable of the worst excesses of mob violence. Being part of a mob gives one a (moral) licence to kill, destroy and maim since a collective responsibility takes over from personal morality. It is for this reason that a riot remains one of the most effective weapons imaginable; and why the provoking and leading of a riot is the stock in trade of any skilled political activist anywhere; and why riots result in so much bitterness. At the end of the day rioters will excuse themselves their own acts of violence, but remember vividly those acts of violence that the authorities were forced to use to prevent the riot getting totally out of hand.

In other words, ex-rioters will tend to say (and possibly even to believe) that they were forced into animal-like behaviour because of another person's (authority's) actions; that during the riot they were carried along on the general tide of violence and thus were not responsible for their own actions.

So we can begin to define the factors leading up to an 'effective' riot. Firstly, there must be a reason for a large number of people to be gathered together in one place (a demonstration, a food queue, a football match, a visiting pop star or whatever). Secondly, there must be a generally-held belief by the crowd that they have every reason (indeed the right) to be there, plus a generally-held sense of grievance. Thirdly, a growing awareness of their (the crowd's) potential power is needed. Fourthly, there must be an incident or series of incidents that will increase tension. And fifthly, there is a need for instigators who will do their damnedest to make sure that the crowd turns into a mob, producing a riot and loss of control.

This last is most important: riots very rarely, if ever, erupt spontaneously; and having erupted, they have little or no sense of direction of their own. The crowd of human individuals becomes an animal-like herd, with all the instincts of not too savage sheep, at least until something triggers off the violence and the sheep turn nasty. This triggering phase may only last a few minutes, but is an extremely vital one: it is at this stage that authority must try to disperse the mob, not by appealing to their better natures, but by panicking them and forcing them, if possible, to split up into smaller groups which will lack the collective courage of the larger herd.

All sorts of example spring to mind, but before we look at riot-control methods, it is worth looking at a few riots that have been deliberately started and that have had a definite effect on history. Remember that a riot is effective because it purports to show that the powers that be have lost control, are no longer capable of keeping order and should therefore be replaced. Of course, in truth it probably does not mean anything of the sort, but it is interesting to note that the recent football riots have been blamed as much on various authorities as on the thugs who started them. The French student riots of the 1960s resulted from a more widespread (and fashionable) support for the militant Left that in itself spawned the Baader-Meinhof Gang, the Red Brigade and other political killers. In the 1970s rioting in predominantly black areas of Detroit set integration in the USA back years. Similarly, present-day rioting in South Africa, with as many if not more people killed by the rioters as by the police, has resulted in a degree of sympathy being shown by the West for a basically unsympathetic regime.

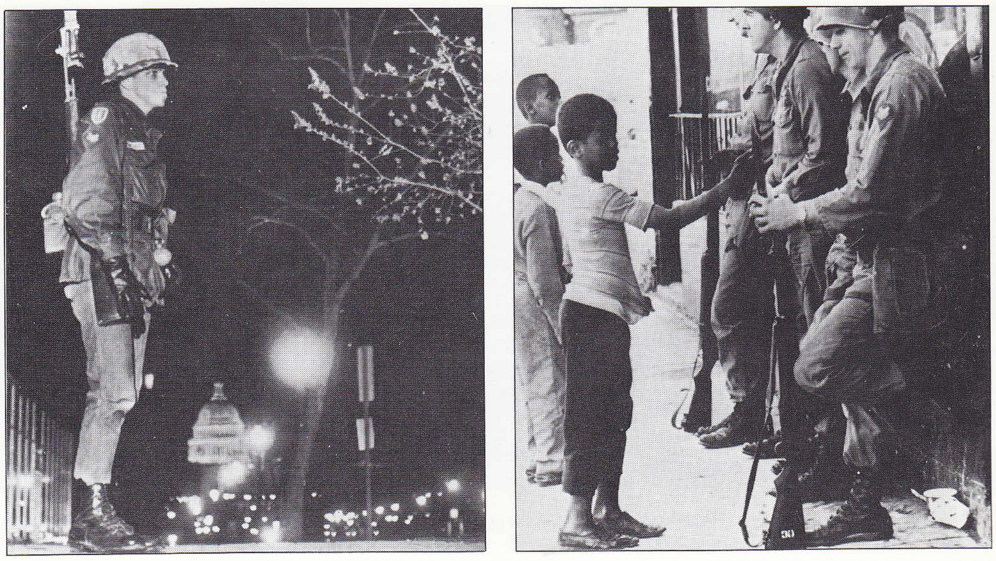


A British police officer, Tottenham 1985; it now seems only a matter of time before plastic bullets will be used in mainland Britain. Whether it would be sensible to create a paramilitary anti-riot unit along the lines of European forces like the French CRS remains open to debate.

A petrol bomb is hurled at British troops in the Bogside area of Londonderry. The use of plastic bullets always excites controversy but, faced with a dousing from burning petrol, the soldier must be allowed to take action.

Controlled rioting allowed the Bolsheviks to gain control of the Russian Revolution. Controlled rioting has allowed the IRA to maintain the initiative in Northern Ireland. In 17th-century England, the London 'mob' was a definite political force, knew its own strength and was instrumental in forcing King George to release John Wilkes from the Tower of London. Wilkes was a strong supporter of the American colonists (becoming known as the 'father of the American revolution'), was a mob orator par excellence and used this control for his own, possibly justified, political ends. And of course it was rioting in Iran, inspired by both the Tudeh (communist party) and the Ayatollah Khomeini, that ultimately brought down the Shah by demonstrating to the population and to the Shah's American backers that he had lost control. All in all, a riot is a far better indication of popular unrest than any survey or poll.

Iran is an excellent example of one of the root causes of rioting and general civil unrest: the more you give people, the more they want and the more they realize how little they had beforehand. When any democratic reforms are instituted, particularly in a country with a relatively uneducated and unsophisticated population, the result is a demand for even faster change coupled with a growing resentment, even hate, for the authorities for not having instituted these reforms much sooner. And whatever the truth of the matter, the reforms are seen as resulting from the power of the people rather than the good sense and democratic ideals of the government. This is particularly true when a marked social and economic gap exists between the ruling classes and the majority of the population. In this sense, democracy often carries within itself the seeds of its own destruction, since it proves all too easy for either fascist or communist groups first to subvert and then to take over the movement for reform, as the Nazis did in Germany after World War I, and as the communists did with the Vietcong (originally a broad-based coalition) before the outbreak of the Vietnam War. A classic example at the time of writing is South Africa, where widespread and vicious rioting has started just when the government has begun (slowly) to dismantle apartheid. This can only favour extremists of both sides.



The US National Guard is no stranger to riot control: (above) a curious youngster in Memphis examines a Tennessee Guardsman's bayonet, and (left) a sentry is seen posted on Pennsylvania Avenue in Washington during the 1968 riots.

Riot dispersal

How riots are prevented and dispersed is a fascinating subject in itself. Before we look at an example, drawn from real life, it must be remembered that the will of the authorities to prevent and/or disperse a riot must be greater than the will of people to riot in the first place. The rioters, actual or potential, must realize that the authorities really do mean business. Force is met with even greater force, but official force must be controlled, selective and of the minimum requirement needed. Riot management and control are no place for gratuitous violence no matter how great the provocation.

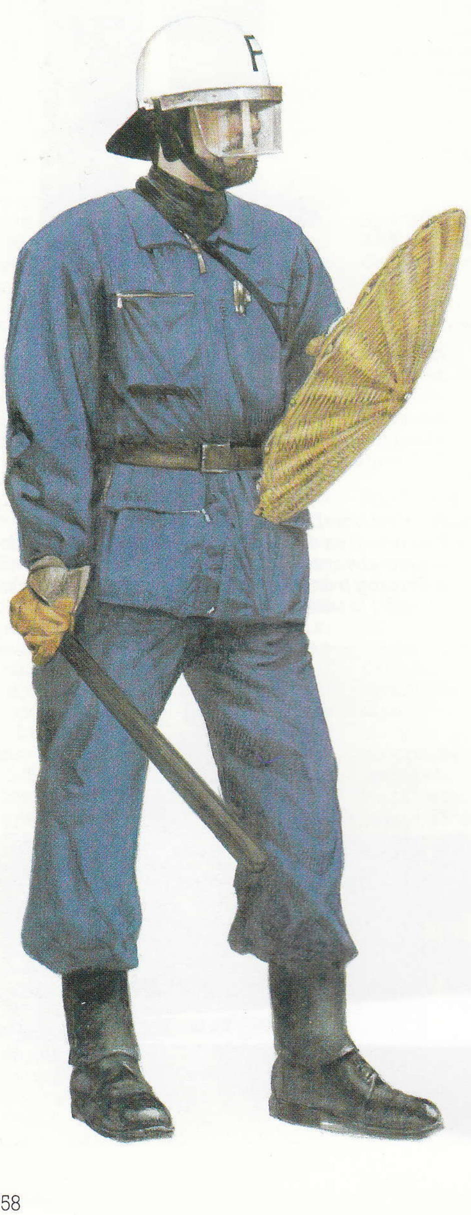
The scene is a British colony inevitably, but not yet, due for independence mainly because the more moderate political parties are not quite strong enough to grasp and maintain political power. There are two main extremist political parties: one is religious-based (and approximately 50 per cent of the population belong to this religion; there are also marked cultural/social differences between them and the other 50 per cent); the other extremist party is communist-based and draws its main support from the latter half of the population. Extremists of each side regard the other as being inferior. Everyone realizes that independence will come, and everyone wants to take credit for it. The two extremist parties have little widespread support, but both receive help from outside sources: the one from a co-religionist country close by, the other from Moscow. The colony practises internal self-government, but the police are controlled by the British. There is also a sizeable detachment of British troops in the colony, which has a vital naval base much used by the Western alliance. The colony's economy is based on manufacturing and trade, and can easily be disrupted.

The aim of each extremist party is to see civil order break down completely and to make the colony such an embarrassment to the UK (not to mention so expensive to maintain) that the UK will cut her losses and get out early, allowing the stronger and more committed party to seize control. It is a situation that is (or rather, was) ideal for widespread rioting to take place.

Riot control starts with properly appreciating the threat, and in particular not underestimating it. To this end, the Special Branch has managed to infiltrate the senior councils of both political parties and is reasonably confident of knowing when and where a riot will be planned. However, it will not be able to foresee a riot that skilled agitators can develop from, say, a religious festival or unpopular football result.

There are in the colony two companies of Gurkhas trained in riot-control methods. Gurkhas are used because they are extremely disciplined troops and because everyone knows their reputation and is slightly scared of them (terrified, in some instances).

The religious extremist party announces a legitimate demonstration (say against co-education in the schools) and Special Branch sources indicate that the communists will attempt to turn this into a riot. The government announces that the demonstration is going to take place (with its blessing), and in order to safeguard the demonstrators, a company of Gurkhas will be on hand, complete with war



The idea that rioting is mainly a symptom of economic hardship was given the lie by the widespread mob violence in affluent areas of Switzerland in the early 1980s. The well-trained police force managed to control events without the intervention of the army.

dogs, to prevent the demonstrators being attacked by their opponents. Come the day, and 20 demonstrators and probably as many agitators find themselves confronting a company of Gurkhas (plus war dogs) and, not surprisingly, no riot takes place. The demonstration is a bit of an anti-climax, too. All the same, everyone present is photographed, particularly those people at the back of the crowd (an agitator's favourite place). In this way, over a period of time known agitators will be identified and if, as and when troops ever have to open fire, as far as possible only the agitators will be shot.

Another occasion is more serious. The communists start a rumour that religious extremists have killed a young man, belonging to another social/cultural group, because he was caught with a girl whose father is a leading religious politician. Jumping on the bandwagon, the religious party starts a rumour that the British are going to ban religious instruction in schools. Secondary school students get in on the act (this being instigated by the communists) and demand automatic university places for all secondary school leavers. Three major secondary schools are taken over by their students, average age 16. It becomes obvious that serious trouble could break out, all it needs being a little incident to trigger off a major riot.

A joint army/Special Branch/Police operations room is set up, reasonably close to the centre of the major city (where trouble usually starts, if only because of population concentration). Guards are increased at the naval base, but because it is miles away from any major town little trouble is anticipated.

Prelude to a riot

The incident happens: a British serviceman driving home runs over and kills a local child. Sensibly, for his own sake, the serviceman does not stop. But this incident is all it needs for the different factions to coalesce into a virulent anti-British movement. Local businessmen put the shutters up. The majority of the local population go home and pull the covers up. The young, the mean, the hysterical, the extremists, the criminal and the agitators take to the streets. The usual pattern is for fairly small mobs to roam around, indulging in the odd spot of pillage and rape, until they form up in one very large mob, at which point someone will suggest a specific target (probably the British High Commission building) and they will try to burn it down.

Agitators are working to shepherd these smaller mobs to a specific meeting place, so the authorities have three immediate problems: they must have a continuing flow of intelligence so that they know where all the sub-mobs are; they must try to stop them from arriving en masse at the central meeting place; and if they do get there, they must be able to disperse them as soon as possible. In this instance, as many as 15 sub-mobs (each consisting of 500 or more persons) are heading by various routes to the main city square. At this time professional agitators are in the front and at the rear, both leading and driving. The agitators are also on the look out for 'natural' mob leaders, those who by virtue of size or personality can act as a focus for the mob's collective hate and destruction and who can be urged to fulfil this role.

Initially, the police attempt to force the sub-mobs back, but after one unlucky constable has had petrol poured over him and then ignited, their enthusiasm for maintaining law and order somewhat abates. Trained 'snatch' squads have attempted, with some success, to pick up more obvious agitators, but the sub-mobs do arrive at the main square, some 7,000 or more people baying for blood.

The authorities now try to keep the mob penned on as narrow a front as possible (in Northern Ireland they use a specially developed four-wheeled armoured bulldozer known affectionately as a 'Paddy Pusher'), because the next phase is full-scale confrontation with a company of Gurkhas, who are all lined up in full riot gear (gasmasks, plastic armour, shields, batons, rifles, helmets etc). By this point the professional agitators have melted away from the front of the mob, and are now leading from the rear. Snipers on the rooftops should neutralize their contribution if the mob refuses to disperse.

Mob contained

Now that the mob is contained on a narrow front, with no opportunity to outflank the Gurkhas, it slows and stops. At this point a senior officer orders the mob to disperse. They never do, so the next step is for the Gurkha company to open order march and move forward towards the mob. This has to be a faultlessly executed procedure, worthy from the drill point of view of the Queen's Birthday Parade, so that the contrast between a remorseless, disciplined force and an undisciplined rabble will be appreciated by the rioters themselves.

Needless to say, the agitators at the back are encouraging those at the front to go on; the next step is for a warning volley to be fired over the heads of the crowd; and a sensible commander will ask his snipers to take out the leading agitators at the same time.

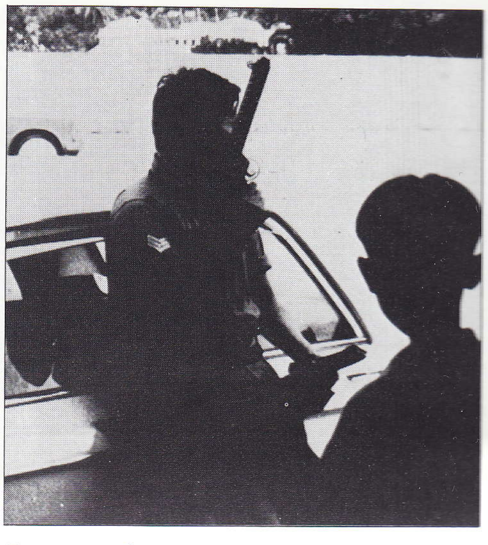
Now the mob begins to turn into a collection of frightened people, turning and beginning to stream out of the square. As they do so, police and troops waiting in the shadows, and in the approach roads to the square, move forward to split the mob up into hundreds of small groups, otherwise they will reform within minutes. Arrests are made and hopefully that is the end of it, at least for this time.

Unfortunately, it does not always go as smoothly as that. The problems are particularly acute when the population is well educated, better motivated and properly led. It is even more acute when the riot occurs on home ground, as in Northern Ireland. A variety of techniques and weapons have been developed, but very few of them have proved to be as effective as anticipated: with CS gas, for example, rioters in Northern Ireland soon discovered that a handkerchief soaked in a mixture of vinegar and water acted as a pretty efficient gas mask; and householders left buckets of vinegar and water outside their front doors so that the 'boys' could riot unmolested. Rubber bullets do have an unfortunate tendency to kill people, and while one can argue that the victim should not have been there in the first place, that argument wears a bit thin when a 10-year-old boy is killed. Water cannon are effective only while the water lasts, and not everyone minds getting a soaking. Marker dye, used from a water cannon or in the form of hand-held aerosols, seemed like a good idea, but it does wash off and anyway it loses much of its effectiveness when the entire population turns up the next day all wearing the same colour dye that was sprayed on the rioters.

An Illinois National Guardsman silhouetted against the flames on Chicago's West Side during a night of violence, April 1968, which left at least eight people dead. He is checking a Browning .30 cal machine-gun.

About the only effective method of controlling a riot is to prevent it from taking place in the first instance. And that, unfortunately, is all too often the responsibility of the politicians.

One final point should be made. It is invariably the intention of the professional agitator to provoke the authorities into using excessive force, or what looks like excessive force when shown on the evening news. In some instances, the police management of the picketing during the recent British miners' strike was deplorable because a situation was allowed to develop which could only be contained by extreme force on the part of the police. The longer the police waited, the worse the situation became. A picket of 6,000 has little or no collective goodwill and should never be allowed to dictate matters, even if police and picket do speak the same language.



A sergeant of the Royal Malay Regiment rests against a car, spare magazine in his left hand, during inter-racial riots in Kuala Lumpur. When religious and racial divisions are exacerbated by economic grievances, it is often a military responsibility to keep the lid on.

INTERNATIONAL

Water Cannon

One of the most effective anti-riot weapons is water, and when fired from a water cannon it becomes even more effective. For many years the water cannon has been used to disperse crowds and mobs for the simple reason that it works very well. Few rioters will stand in the path of a water jet without taking protective action, which usually takes the form of running away. If high-pressure hoses are used the sheer effort of simply standing upright becomes difficult and any ideas of riotous behaviour usually vanish.

Water cannon have many other advantages to their users. High on the list is that such devices rarely cause serious casualties to produce the martyrs so beloved of many causes. Water jets may cause bruises by knocking people over, but it is uncommon for them to cause anything worse. Another advantage is that water is cheap and usually plentiful. All that is required to make water into an anti-riot weapon is to pass it through a water pump. These are usually easy to find, often in a mobile form.

Water cannon rarely cause much damage to buildings and installations. They may cause temporary flooding and associated nuisance, but rarely more. There is also a simple way that water can cause rioters to be singled out for later apprehension: mixing a dye with the water marks rioters in a manner they cannot easily remove.

Specialized types of water cannon have been produced. One still kept in reserve in Northern Ireland is known as the **Special Water Dispenser**. This is mounted on an old Saracen armoured carrier and is designed to deliver short 'slugs' of water at point targets up to 40 m (43.7 yards) distant. The effect of one of these slugs has been likened to receiving a heavy blow from a fist, and anyone hit by such a slug is likely to lose interest in the local proceedings for some time but is not likely to be permanently harmed. The SWD has not yet been used 'operationally'.

Water cannon have their limitations, however. In many urban centres they might not be able to get near their intended targets as they cannot get past parked vehicles or barricades. They are also limited in range. Other than on a few of the more specialized designs the useful range is limited to about 30 m (33 yards), well within thrown-missile range. Unless they are ready prepared they take some time to get operational, and once their tanks are empty they may take even longer to refill. In some situations the mere sight of water cannon vehicles can inflame tensions or passions to a dangerous level.

But for all these drawbacks water cannon are still very useful anti-riot weapons. Even the most determined rioter cannot remain long in the path of a powerful water jet, and it should also be noted that the dislike of water by crowds is so intense that few riots take place in the rain.

Water Cannon, seen here in action in West Germany, have proved useful anti-riot weapons especially in chilly weather, although they do not deter the really hard-core rioter.

3
LEDERWAREN
Pirani LEDE

BRAZIL

Model 02 LAPA Carabina Automatica

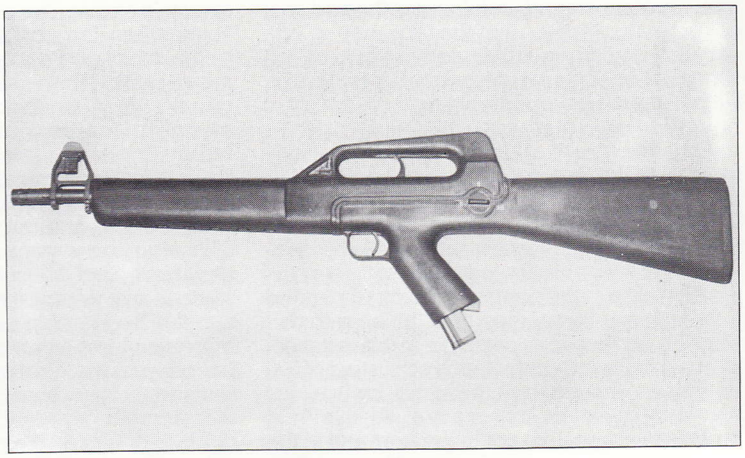
The **Model 02 LAPA Carabina Automatica** is designed to fire the relatively low-powered 5.56-mm (0.22-in) Long Rifle cartridge and is intended for use by police, prison guards and similar paramilitary personnel. The design is an offshoot from the Model 03 LAPA (Laboratorio de Pesquisa de Armamento Automatico Ltda) assault rifle, and uses a very similar operating mechanism. Both weapons are currently under development in the LAPA workshops in Rio de Janeiro.

The Model 02 is a fully automatic weapon that bears some resemblance to the LAPA assault rifle but has been made much lighter (and thus easier to handle and to carry) than the full military version. It is still under development and to date two versions have appeared. One uses an 18-round box magazine inserted into the pistol grip, while the other has a curved 30-round magazine inserted into a housing just forward of the pistol grip. The final form has apparently yet to be decided. Both versions have an M16-type carrying handle over the in-line receiver, which also houses the rear sights, and the cocking lever is under this handle. As with other weapons of this type the low-powered round used produces very little recoil, enabling accurate fire even on fully-automatic bursts.

The Model 02 is intended to deliver automatic fire with accuracy in urban warfare conditions, usually in internal security situations. As a result of its design it can fire at cyclic rates of up to 2,400 rpm, although this depends on the ammunition being used, for some makes of cartridge generate much lower rates of fire.

The **Carabina Esportiva** is a semi-automatic version of the Model 02 using a 10-round magazine in the grip. It is intended for civilian use, hopefully as a sporting weapon, but it could also be used for paramilitary purposes.

The Model 02 makes full use of modern materials in its design, the entire body being made of a strong plastic material. Its smooth outlines certainly make it an easy weapon to carry in the close confines of a police vehicle, and its all-in-line configuration makes the weapon easy to aim and to control. The overall design is reported to be still under development but it seems very likely that orders will be placed by Brazilian police and paramilitary units in the near future.



Intended for use by paramilitary personnel, the LAPA carbine fires .22 Long Rifle cartridge which has low lethality (although it tends to produce infectious wounds). The use of such a low-powered cartridge reduces recoil and muzzle climb, making automatic fire more accurate.

Specification

Mode 02 LAPA Carabina Automatica

Calibre: 5.56 mm (0.22 in) Long Rifle

Lengths: overall 775 mm (30.5 in); barrel 370 mm (14.57 in)

Weight: unloaded 2.1 kg (4.63 lb)

Muzzle velocity: about 330 m (1,082 ft) per second

Magazine capacity: 18 or 30 rounds

Peru

The frontiers of Peru, with the exception of those formed by tributaries of the River Amazon, are or have been the source of boundary disputes with Peru's neighbours. Between June 1976 and January 1977, and again in February 1981, fierce little border battles were fought with Ecuador, the latter clash involving aircraft on both sides and almost leading to a full-scale war when Ecuadorian troops penetrated some 10 km (6.2 miles) into Peruvian territory as recognized by the Protocol of Rio de Janeiro which ended the brief 1941 border clashes between these two countries. Apart from these continuing border problems, the army successfully suppressed a Trotskyite guerrilla outbreak in the south east, on the border with Bolivia during the early 1960s. However, in the late 1960s and during the 1970s internal opposition is being provided by the Sendero Luminoso (Shining Path) communist guerrilla group, which is becoming increasingly engaged with Peruvian government forces in a vicious terrorist campaign with both urban and rural aspects.

The Army

Divided into five military regions, the 85,000-strong Peruvian army is nominally divided into divisions which in terms of numbers are actually brigades. A full listing of the army units includes:
three armoured divisions,
one cavalry division (four mechanized regiments),
seven infantry divisions (each of four infantry
  battalions and one field artillery group),
one jungle division (four jungle infantry battalions
  and one field artillery group),
one para-commando brigade (one paratroop
  battalion and two commando battalions),
one armoured car brigade (regiment),
two independent field artillery groups,
two independent field artillery battalions,
one independent air defence group,
one independent SAM group,
two independent infantry groups,
four independent infantry battalions,
three independent cavalry regiments,
eight independent engineer battalions, and
one Amazon special engineer group.

The equipment used by these forces is a strange mixture of Eastern and Western types, the latter coming from the USA and Western Europe. The Soviet connection occurred in the early 1970s when an arms deal was signed for T-54/T-55 MBTs and ZSU-23-4 self-propelled AA guns. Further purchases covered artillery pieces, SAMs and aircraft. However, shortage of spares and poor maintenance has reportedly caused many problems with this equipment. A full list of army weapons includes:

Armour: M4A3 Sherman, TAM, T-54 and T-55 MBTs; AMX-13FL-10/FL-12 light tanks; M3A1 scout cars; BRDM-2, Fiat 6616 and M8 armoured cars; and M113A1, Chaimite and UR-416 APCs;
Artillery: (towed) 105-mm (4.13-in) M101 howitzers, 105-mm M56 pack howitzers, 122-mm (4.8-in) D74 guns, 122-mm D30 howitzers, 130-mm (5.12-in) M46 guns and 155-mm (6.1-in) M114 howitzers;
  (self-propelled) 81-mm (3.2-in) Type 6614 and 120-mm M106A1 SP mortars;
  (mortars) 81-mm and 120-mm Brandt; and
  (MRL) 122-mm BM-21;
Anti-armour weapons: 105-mm Model 1968 and 106-mm (4.17-in) M40A1 recoilless rifles; and Cobra ATGWs;
Anti-air weapons: (towed) twin 20-mm, 40-mm M1 Bofors, 40-mm L/60 Bofors, 40-mm L/70 Bofors and 76-mm (3-in) M3 guns;
  (self-propelled) 23-mm ZSU-23-4; and
  (SAM) SA-2, SA-3 and SA-7; and
Small arms: 9-mm Uzi SMG; 7.62-mm FN-FAL, 7.62-mm G3 and 7.62-mm AK-47 rifles; and 7.62-mm FN-MAG MG.

There is also an army aviation service, the Servicio de Aviacion del Ejercito del Peru, which has one liaison and three transport squadrons flying a total of five Cessna 185 fixed-wing aircraft, and 25 Mil Mi-8 'Hips' (with 15 more and 20 Mil Mi-6 'Hooks' in storage) plus six Aérospatiale SA.318C Alouette II helicopters. Most of the Soviet helicopters were mothballed because of their abysmal servicing and safety record.

The Navy

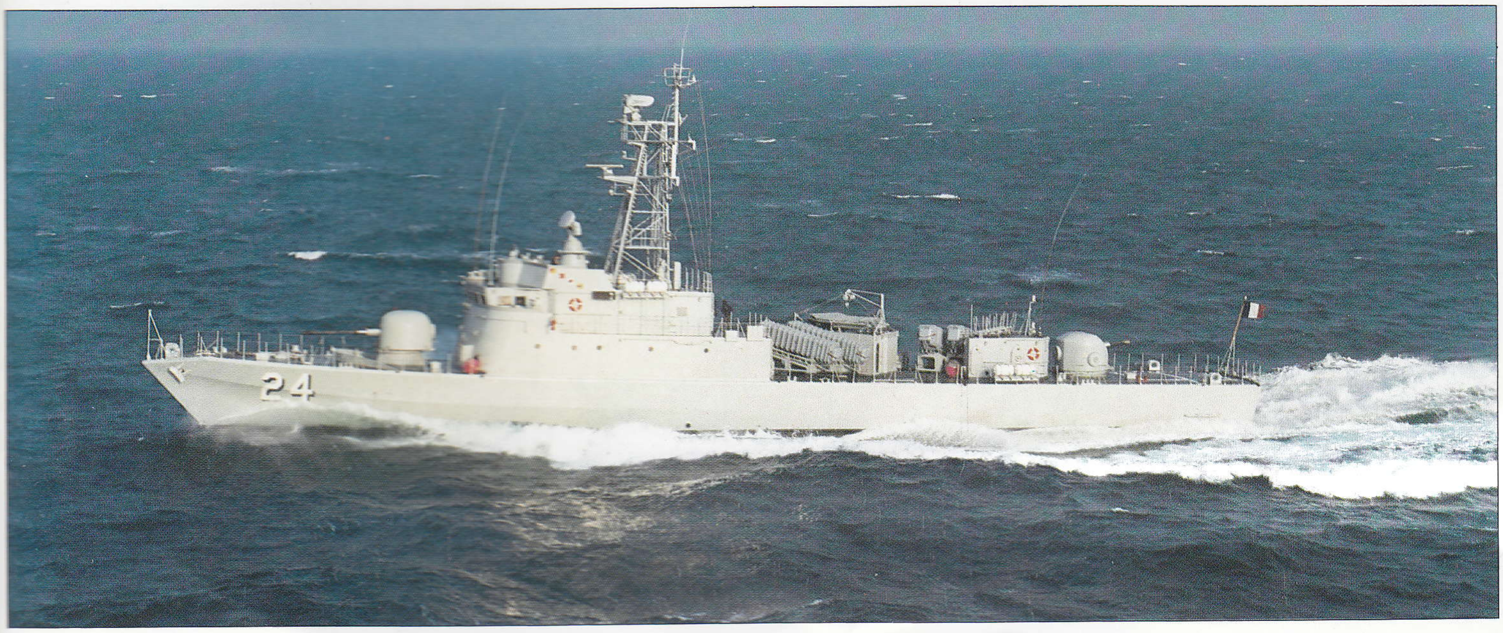
In contrast with the army, the 27,000-man Peruvian navy operates equipment predominantly European in origin. The main strike force of the fleet is the submarine arm with six modern West German 'Type 209', two ex-American 'Guppy I' and four American-built 'Abtao' class boats. The last are unique in that two of them are the only submarines left in the world with deck guns, each having a single 127-mm (5-in) weapon.

The capital ships comprise two ex-Dutch 'De Ruyter' class 152-mm (6-in) gun cruisers of which one, the *Aguirre*, has been transformed into a helicopter carrier for Agusta-Sikorsky SH-3D/H Sea Kings fitted with AM.39 Exocet anti-ship missiles. To back the cruisers there are two ex-British 'Daring' class destroyers each fitted with eight MM.38 Exocet launchers, and four newly-built Italian 'Lupo' class frigates each with eight longer-range Otomat SSMs. One 'Holland' and seven 'Friesland' class ex-destroyers also provide a useful surface strike, shore bombardment and limited ASW element.

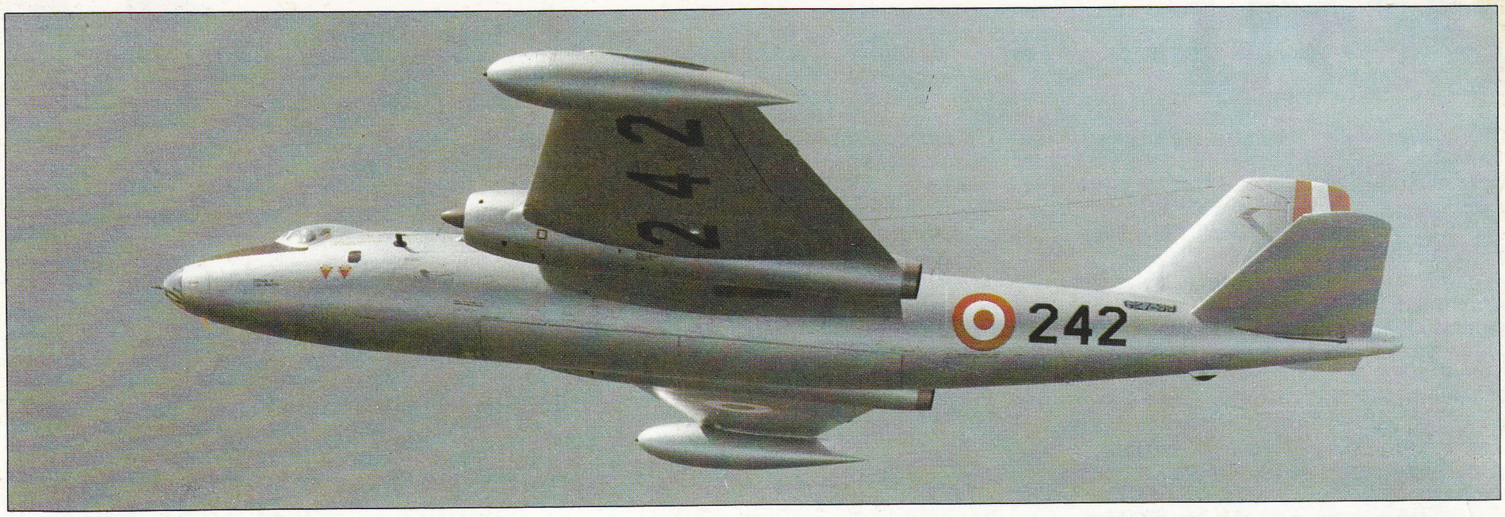
The light forces are based on six 'PR72P' class fast attack missile craft each fitted with four MM.38 Exocets, and 11 river gunboats and patrol craft for use on the country's lakes and great rivers.

For the single 3,500-man Fuerza de Infantera de Marina amphibious brigade (of three battalions) and local security detachments there is an amphibious warfare force of two LSTs and two LSMs. The Marines use standard infantry small arms, 120-mm mortars, 106-mm M40 and 84-mm Carl Gustav recoilless rifles, twin 20-mm AA guns and several armoured units including some 50 Chaimite wheeled reconnaissance and APC vehicles.

To supply the surface combatants at sea there is an extensive replenishment service with two transports, three underway replenishment tankers and



The Peruvian navy has six PR-72P Fast Attack Craft built by SFCN in France. Displacing 560 tons at full load, they carry four Exocet SSMs in single cells and a useful gun armament of one 76-mm/62 OTO-Melara, two Bofors 40-mm/70s and two 20-mm Oerlikons.



Typifying the Canberras still flying and periodically coming to Warton for refurbishment, this Mk 72 is from the Peruvian air force's Jorge Chavez base. Two squadrons fly 31 aircraft of three marks, tasked with bombing, and another unit has two trainers and 11 ex-RAF Canberras.

four support/harbour tankers. For other work there are seven survey/research craft and some 20 auxiliaries. A small 600-man coastguard exists for coastal patrol duties with 12 large and 12 small armed patrol craft.

The Servicio Aeronaval de la Marina Peruana, or naval air force, has three ASW/maritime patrol squadrons flying seven Grumman S-2E Trackers, two Fokker F.27MPA Maritimes, three EMBRAER EMB-111 and four Beech Super King Air B200T fixed-wing aircraft and about 12 SH-3D/H Sea King helicopters. A utility helicopter squadron flies four Bell 206s, six Bell UH-1D/H 'Hueys' and six Agusta-Bell AB.212ASWs. The last are equipped to carry and fire Sea Killer ASMs, and are used from the 'Lupo' class frigates. For fleet support/liaison role there is a transport unit with two Douglas C-47 Dakotas, one Douglas DC-3 and two Cessna 150s, whilst for aircrew training a mixed squadron flies six Beech T-34A/Cs, four Bell 47Gs, and four Bell 206s.

The Air Force

Although showing up poorly in the recent border skirmishes with Ecuador, the Peruvian air force (Fuérza Aerea del Peru) is one of the most modern on the South American continent. The main attack element is formed by a bomber group of three squadrons, two of which fly the survivors of eight B(I).Mk 8, one B(I).Mk 78, three T.Mk 74, six B.Mk 72, six B(I).Mk 56 and 12 B(I).Mk 68 English Electric Canberra light bombers delivered from the mid-1950s onwards. The third flies 12 or 13 Cessna A-37B Dragonfly light attack jets.

Air-defence and ground-attack duties are handled by two fighter groups totalling five squadrons. One group flies two squadrons with some 25 modernized Dassault Mirage 5Ps and five Mirage 5DPs, 10 other Mirage 5Ps having been transferred to Argentina during the last days of the Falklands war to replace heavy IAI Dagger losses. The third squadron flies another 12 or 13 Cessna A-37s, but is due to re-equip with 11 Dassault-Breguet Mirage 2000Ps and two Mirage 2000DPs currently on order. The number was actually to be twice this, but financial problems caused the order to be halved. It is also believed that a further 30 Mirage 50Ps were ordered at the same time for strike duties but the status of this order is at present in question for the same reasons. The other group has only two squadrons but flies the 46 survivors of 56 Soviet Sukhoi Su-20/22 'Fitter' ground-attack fighters supplied in the 1970s. These comprised 36 Su-22 'Fitter-F' and 16 Su-22BKL 'Fitter-J' single-seaters and four Su-20U 'Fitter-E' two seaters with provision for 'Atoll' AAMs.

For COIN and army support missions an attack helicopter unit is being formed with a dozen Mil Mi-25 'Hind' helicopters. A limited reconnaissance capability is provided for by a single squadron with six customized civil twin-engined jets and piston-engined aircraft.

Long-range transport and army resupply/paratroop missions are flown by two transport groups with three squadrons, and the National Jungle Air Transport fleet. The latter flies de Havilland Canada DHC-6 Twin Otters, Pilatus Turbo-Porters and some C-47s, whilst the former have at their disposal some 50 transports, of which the most important are four Lockheed L-100/C-130H Hercules, two Douglas DC-8-62Fs, 13 Antonov An-26 'Curls' and 14 DHC-5 Buffaloes. A liaison group operates two squadrons of Beech King Air, Beech Queen Air and Beech 99 twin-engined aircraft between the main military bases and population centres. Rotary lift is provided by a single group with independent flight elements using some 59 helicopters of seven different types (eight Alouette IIIs, six Mi-6s, five Mi-8s, three MBB BO 105Cs, nine Bell 206s, 16 Bell 212s, and 12 Bell 214STs).

The Academia del Aire provides all aircrew training with four squadrons flying 55 Cessna T-41D piston-engined and T-37B/C and Macchi M.B.339A jet-engined trainers. The last was, in its M.B.339K Veltro II single-seat attack jet form, to have been produced locally, but financial problems appear to have halted for the time being this replacement for the Cessna A-37.

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SERVICIO AEROFOTOGRAFICO NACIONAL

The Gates Learjet in its various forms has found its way into the inventories of several air arms around the world. Typical are two Model 25Bs operated by Peru for survey work on behalf of the Directorate General of Photographic Air Survey and Mapping from Las Palmas.